CE

EMC COMPLIANCE TEST REPORT

for

USB ADSL

Trade Number : EDIMAX
Model Number : AR-7024UM
Serial Number : N/A
Report Number: 51031206-E
Date : November 1, 2005
Regulations : See below

Standards	Results (Pass/Fail)
EN 55022: 1994 + A1: 1995 + A2: 1997	PASS
EN 61000-3-2: 2000	PASS
EN 61000-3-3: 1995 + A1: 2001	PASS
EN 55024: 1998	
- IEC 61000-4-2: 1995 + A1: 1998 + A2: 2000	PASS
- IEC 61000-4-3: 2002 + A1: 2002	PASS
- IEC 61000-4-4: 1995 + A1: 2000 + A2: 2001	PASS
- IEC 61000-4-5: 1995 + A1: 2000	PASS
- IEC 61000-4-6: 1996 + A1: 2000	PASS
- IEC 61000-4-8: 1993 + A1: 2000	N/A
- IEC 61000-4-11: 1994 + A1: 2000	PASS

Prepared to :

EDIMAX TECHNOLOGY CO., LTD.
No. 3, Wu-Chuan 3rd Road, Wu-Ku Industrial Park,
Taipei, Taiwan R.O.C.

Prepared by :

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EC-Declaration of Conformity

For the following equipment:

USB ADSL

(Product Name)

AR-7024UM / EDIMAX

(Model Designation / Trade name)

EDIMAX TECHNOLOGY CO., LTD.

(Manufacturer Name)

No. 3, Wu-Chuan 3rd Road, Wu-Ku Industrial Park, Taipei, Taiwan R.O.C.

(Manufacturer Address)

is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility Directive (89/336/EEC, Amended by 92/31/EEC, 93/68/EEC & 98/13/EC), For the evaluation regarding the Electromagnetic Compatibility (89/336/EEC, Amended by 92/31/EEC & 93/68/EEC & 98/13/EC) the following standards are applied:

[V] EN 55022: 1994 + A1: 1995 + A2: 1997
[V] EN 61000-3-2: 2000
[V] EN 61000-3-3: 1995 + A1: 2001
[V] EN 55024: 1998
IEC 61000-4-2: 1995+A1: 1998+ A2: 2000;
IEC 61000-4-3: 2002 + A1: 2002;
IEC 61000-4-4: 1995 + A1: 2000 + A2: 2001;
IEC 61000-4-5: 1995 + A1: 2000; IEC 61000-4-6: 1996 + A1: 2000;
IEC 61000-4-8: 1993 + A1: 2000; IEC 61000-4-11: 1994 + A1: 2000

The following manufacturer / importer or authorized representative established within the EUT is responsible for this declaration:

(Company Name)

(Company Address)

Person responsible for making this declaration:

(Name, Surname)

(Position / Title)

(Place) (Date) (Legal Signature)

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VERIFICATION OF COMPLIANCE

Equipment Under Test:	USB ADSL
Trade Name:	EDIMAX
Model Number:	AR-7024UM
Serial Number:	N/A
Applicant:	**EDIMAX TECHNOLOGY CO., LTD.** No. 3, Wu-Chuan 3rd Road, Wu-Ku Industrial Park, Taipei Taiwan R.O.C.
Manufacturer:	**EDIMAX TECHNOLOGY CO., LTD.** No. 3, Wu-Chuan 3rd Road, Wu-Ku Industrial Park, Taipei Taiwan R.O.C.
Type of Test:	EMC Directive 89/336/EEC for CE Marking
Technical Standards:	EN 55022: 1994 + A1: 1995 + A2: 1997 EN 61000-3-2: 2000 EN 61000-3-3: 1995 + A1: 2001 EN 55024: 1998 IEC 61000-4-2: 1995 + A1: 1998 + A2: 2000; IEC 61000-4-3: 2002 + A1: 2002; IEC 61000-4-4: 1995 + A1: 2000 + A2: 2001; IEC 61000-4-5: 1995 + A1: 2000; IEC 61000-4-6: 1996 + A1: 2000; IEC 61000-4-8: 1993 + A1: 2000; IEC 61000-4-11: 1994 + A1: 2000
File Number:	51031206-E
Date of test:	January 23, 2003 & January 24, 2003
Deviation:	At the customers' request, we adopt the above standards.
Condition of Test Sample:	Normal

The above equipment was tested by Compliance Certification Services Inc. for compliance with the requirements set forth in EMC Directive 89/336/EEC and the Technical Standards mentioned above. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment and the level of the immunity endurance of the equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Approved by:

David Wang
Manager of Hsintien Laboratory
Compliance Certification Services Inc.

Reviewed by:

Vince Chiang
Assistant Manager of Hsintien Laboratory
Compliance Certification Services Inc.

GENERAL INFORMATION

Applicant:	**EDIMAX TECHNOLOGY CO., LTD.** No. 3, Wu-Chuan 3rd Road, Wu-Ku Industrial Park, Taipei, Taiwan R.O.C.
Manufacturer:	**EDIMAX TECHNOLOGY CO., LTD.** No. 3, Wu-Chuan 3rd Road, Wu-Ku Industrial Park, Taipei, Taiwan R.O.C.
File Number:	51031206-E
Date of Test:	January 23, 2003 & January 24, 2003
Equipment Under Test:	USB ADSL
Trade Name:	EDIMAX
Model Number:	AR-7024UM
Serial Number:	N/A
Type of Test:	EMC Directive 89/336/EEC for CE Marking
Technical Standards:	EN 55022: 1994 + A1: 1995 + A2: 1997 EN 61000-3-2: 2000 EN 61000-3-3: 1995 + A1: 2001 EN 55024: 1998 IEC 61000-4-2: 1995 + A1: 1998 + A2: 2000; IEC 61000-4-3: 2002 + A1: 2002; IEC 61000-4-4: 1995 + A1: 2000 + A2: 2001; IEC 61000-4-5: 1995 + A1: 2000; IEC 61000-4-6: 1996 + A1: 2000; IEC 61000-4-8: 1993 + A1: 2000; IEC 61000-4-11: 1994 + A1: 2000
Frequency Range (EN 55022):	150kHz to 30MHz for Line Conducted Test 30MHz to 1000MHz for Radiated Emission Test
Test Site:	**Compliance Certification Services Inc.** **Hsintien Lab.** No. 165, Chunghsen Road, Hsintien City Taipei Hsien, Taiwan

SYSTEM DESCRIPTION

EUT Test Procedure:

1. Windows 2000 Boots System.
2. Run Emitest.exe To Activate All Peripherals And Display “H” Pattern On Monitor Screen.
3. Run AccessRunner Control Panel to Connect EUT.

PRODUCT INFORMATION

Housing Type:	Plastic
EUT Power Rating:	1.8VDC / 3.3VDC/ 5VDC from Host PC Power Supply
AC power during Test:	230VAC, 50Hz to Host PC Power Supply
Power Supply Manufacturer:	Seventeam
Power Supply Model Number:	ST-250BLV
AC Power Code Type:	Unshielded, 1.8m (Detachable)
EUT I/O Cable Type:	Shielded, 1.0m (Detachable)
OSC/Clock Frequency:	35.328MHz

I/O Port of EUT:

I/O PORT TYPES	Q'TY	TESTED WITH
1). LINE Port	1	1
2). USB Port (2.0)	1	1

Note: N/A

SUPPORT EQUIPMENT

Host PC Devices:

No	Equipment	Model #	Serial #	FCC/BSMI ID	Trade Name
1.	HDD	5T040H4	N/A	BSMI ID: 3892D143	Maxtor
2.	POWER SUPPLY	ST-250BLV	N/A	BSMI ID: 3892B860	Seventeam
3.	CD/R	CD-540E	4866830	DoC BSMI ID: 3892A885	TEAC
4.	FLOPPY	D353M3	N/A	62007003	MITSUMI
5.	CPU (1.8GHz)	P4	N/A	N/A	INTEL
6.	RAM (256MB)	MPMB62D-68KX3	220155	N/A	KINGMAX
7.	M/B	MS-6580Max	N/A	DoC	MSI

Peripherals Devices:

No	Equipment	Model #	Serial #	FCC / BSMI ID	Trade Name	Data Cable	Power Cord
1.	PS/2 Mouse	M-S34	LZC12206114	DZL211029 BSMI ID: 4862A011	LOGITECH	Shielded, 1.8m	N/A
2.	PS/2 Keyboard	6311-TA	N/A	BSMI ID: 3882A039	ACER	Shielded, 1.8m	N/A
3.	Modem	5JEG4033MKO	L0063CG2D007190	5RJTAI-35500-M5-E	TOP-SOLUTION	Shielded, 0.9m	Unshielded, 1.8m
4.	Monitor	GH15PS	N/A	DoC BSMI ID: 3912A287	SAMSUNG	Shielded, 1.8m with two cores	Unshielded, 1.8m with a core
5.	Printer	EPSONSTYLUSC 20SX	DW4E126671	BSMI ID: 3902E004	EPSON	Shielded, 1.8 m	Unshielded, 1.8m
6.	CO. Router	N/A	AR26000002	N/A	Premier	Shielded, 20m	Unshielded, 1.8m

Note: All the above equipment/cables were placed in worse case positions to maximize emission signals.

Grounding: Grounding was in accordance with the manufacturer' s requirements and conditions for the intended use.

TEST FACILITY

Location: No. 165, Chunghsen Road, Hsintien City
Taipei Hsien, Taiwan

Description: There are six 3/10m open area test sites and two line conducted lab for final test.
The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003 and CISPR 22/EN 55022 requirements.

Site Filing: A site description is on file with the Federal Communications Commission, 7435 Oakland Mills Road, Columbia, MD 21046.

Registration also was made with Voluntary Control Council for Interference (VCCI).

Site Accreditation: Accredited by A2LA (Certificate #: 824.01) for EMC.

Also accredited by BSMI for the product category of Information Technology Equipment.

Instrument Tolerance: All measuring equipment is in accord with ANSI C63.4 and CISPR 22 requirements that meet industry regulatory agency and accreditation agency requirement.

Ground Plane: Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For Radiated Emission Test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna. It has no holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the highest frequency of measurement up to 1GHz.

TEST EQUIPMENT LIST (EMISSION)

Instrumentation: The following list contains equipment used at Compliance Certification Services Inc. for testing. The equipment conforms to the CISPR 16-1 / ANSI C63.2-1988 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 9kHz to 1.0 / 2.0 GHz.

Open Area Test Site: #E

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL. DUE
SPECTRUM ANALYZER	H.P.	8566B	2937A06102	06/07/02	06/06/03
SPECTRUM DISPLAY	H.P.	85662A	2848A18276	06/07/02	06/06/03
QUASI-PEAK DETECTOR	H.P.	85650A	2811A01439	06/07/02	06/06/03
AMPLIFIER	H.P.	8447D A	2727A05764	05/06/02	05/05/03
ANTENNA	EMCO	3142	1310	06/30/02	06/29/03
CABLE	BELDEN	9913	N-TYPE07	01/08/03	01/07/04

Conducted Area Test Site: Conducted Room

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL. DUE
TEST RECEIVER	R&S	ESHS20	840455/006	03/16/02	03/15/03
LISN	SOLAR	8012-50-R-24-BNC	8305114	07/13/02	07/12/03
LISN (EUT)	EMCO	3825/2	1435	01/15/03	01/14/04
BNC CABLE	TIMES MICROWAVE	LMR-195	BNC 03	05/03/02	05/02/03

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

TEST EQUIPMENT LIST

For Power Harmonic & Voltage Fluctuation/Flicker Measurement:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
HP / Harmonic & Flicker Tester	6842A	3531A-000142	06/18/2002	06/17/2003

For ESD test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
Schaffner / ESD Simulator	NSG 432	2029	02/06/2002	02/05/2003

For Radiated Electromagnetic Field immunity Measurement:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
R&S / Signal Generator	SMY 02	DE13751	01/13/2003	01/12/2004
IFI / "E" Field sensor/ Light Modulator Transmitter	EFS-5	713-0695	06/28/2002	06/27/2003
IFI / Combination Amplifier	SMX100	2067-1196	No Calibration Required	No Calibration Required
IFI / Leveling Pre-Amplifier	LPA-5B	714-0695	No Calibration Required	No Calibration Required
EMCO / Biconilog Antenna	3142	9609-1087	No Calibration Required	No Calibration Required

For Fast Transients/Burst test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
KeyTek Instruments / EFT Generator	E421	9502326	10/01/2002	09/30/2003
KeyTek Instruments / Capacitive Clamp	CCL-4	9503290	No Calibration Required	No Calibration Required

For Surge Immunity test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
KeyTek Instruments/ Surger Generator	E501	9502324	10/01/2002	09/30/2003
Telecom Lines Coupler DECOUPLER KeyTek Instruments	CM-TELCD	0104399	No Calibration Required	No Calibration Required
I/O Signal Line DECOUPLER KeyTek Instruments	CM-I/OCD	0103234	No Calibration Required	No Calibration Required

For CS test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
R&S / Signal Generator	SMY 02	DE13751	01/13/2003	01/14/2004
IFI / Combination Amplifier	SMX100	2067-1196	No Calibration Required	No Calibration Required
IFI / Leveling Pre-Amplifier	LPA-5B	714-0695	No Calibration Required	No Calibration Required
FISCHER / Power Line Coupling Decoupling Network	FCC-801-M3-16A	99122	11/02/2002	11/01/2003
FISCHER / Bulk Current Injection Probe	F-120-9B	54	11/02/2002	11/01/2003
Narda / High Power Attenuator	769-6	02541	No Calibration Required	No Calibration Required

For Power Frequency Magnetic Field test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
Haefely / Magic Field Tester	MAG 100.1	081436-02	No Calibration Required	No Calibration Required
Extech Electronics / Frequency Converter	CFC-105	810390	No Calibration Required	No Calibration Required
CHY/ AC/DC Clamp Meter	932C	2K0900285	10/24/2002	10/23/2003

For Voltage Dips/Short Interruption and Voltage Variation Immunity test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
Haefely / Dips/Inerruption/Variations Tester	PLINE 1610	081568-06	04/25/2002	04/24/2003
FLUKE / 79 Series Ii Multimeter	79-II	66400868	07/02/2002	07/01/2003

SECTION 1 EN 55022 (LINE CONDUCTED & RADIATED EMISSION)

MEASUREMENT PROCEDURE
(PRELIMINARY LINE CONDUCTED EMISSION TEST)

1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per EN 55022 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

2) Support equipment, if needed, was placed as per EN 55022.

3) All I/O cables were positioned to simulate typical actual usage as per EN 55022.

4) The EUT received DC 1.8V/ 3.3V/ 5V power through Host PC and Line Impedance Stabilization Network (LISN) which supplied power source of 230VAC/ 50Hz and was grounded to the ground plane.

5) All support equipment received power from a second LISN supplying power of 110VAC/60Hz, if any.

6) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.

7) Analyzer / Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.

8) During the above scans, the emissions were maximized by cable manipulation.

9) The following test mode were scanned during the preliminary test:

Mode :

1. NOAMAL MODE

10) After the preliminary scan, we found the following test mode producing the highest emission level.

Mode: 1.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

MEASUREMENT PROCEDURE
(FINAL LINE CONDUCTED EMISSION TEST)

1) EUT and support equipment was set up on the test bench as per step 10 of the preliminary test.

2) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Q.P. mode, then the emission signal was re-checked using an A.V. detector.

3) The test data of the worst case condition(s) was reported on the Summary Data page.

Data Sample:

Freq (MHz)	Meter Reading (dBuV)	C.F. (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Margin (dB)	Reading Type (P/Q/A)	Line (L1/L2)
x.xx	**x.xx**	**x.xx**	**38.38**	**56.00**	**-17.62**	**P**	**L1**

C.F.(Correction Factor)=Insertion Loss + Cable Loss
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading - Limits

P=Peak Reading L1=Hot
Q=Quasi-peak L2=Neutral
A=Average Reading

Comments: **N/A**

Calculation example:

Margin (dB) = Corrected Reading (dBuV) – Limit (dBuV)

LINE CONDUCTED EMISSION LIMIT (EN 55022)

Frequency	Maximum RF Line Voltage	
	Q.P.	AVERAGE
150kHz-500kHz	66-56dBuV	56-46dBuV
500kHz-5MHz	56dBuV	46dBuV
5MHz-30MHz	60dBuV	50dBuV

Note: The lower limit shall apply at the transition frequency.

MEASUREMENT PROCEDURE
(PRELIMINARY RADIATED EMISSION TEST)

1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per EN 55022 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

2) Support equipment, if needed, was placed as per EN 55022.

3) All I/O cables were positioned to simulate typical actual usage as per EN 55022.

4) The EUT received DC 1.8V/ 3.3V/ 5V power source from Host PC Power Supply (230VAC/50Hz) the outlet socket under the turntable. All support equipment received 110VAC/60Hz power from another socket under the turntable, if any.

5) The antenna was placed at 10 meter away from the EUT as stated in EN 55022. The antenna connected to the analyzer via a cable and at times a pre-amplifier would be used.

6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

7) The following test mode were scanned during the preliminary test:

Mode:

1. NOAMAL MODE

8) After the preliminary scan, we found the following test mode producing the highest emission level.

Mode: 1.

Then, the EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for final testing.

MEASUREMENT PROCEDURE
(FINAL RADIATED EMISSION TEST)

1) EUT and support equipment were set up on the turntable as per step 8 of the preliminary test.

2) The Analyzer / Receiver scanned from 30MHz to 1000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

3) Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Peak reading is presented. If EUT emission level was less-2dB to the limit, then the emission signal was re-checked using a Q.P. detector.

4) The test data of the worst case condition(s) was reported on the Summary Data page.

Data Sample:

Freq (MHz)	Meter Reading (dBuV)	C.F. (dB/m)	Corrected Reading (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading Type P/Q/A	Pol. H/V
x.xx	**x.xx**	**x.xx**	**30.82**	**37.00**	**-6.18**	**P**	**V**

C.F.(Correction Factor)=Antenna Factor + Cable Loss + Attenuator(3/6dB) - Amplifier Gain
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading – Limits

P=Peak Reading H=Horizontal Polarization/Antenna
Q=Quasi-peak V=Vertical Polarization/Antenna
A=Average Reading

Comments: **N/A**

Calculation example:

Margin (dB) = Corrected Reading (dBuV/m) – Limits (dBuV/m)
Corrected Reading (dBuV/m)=Metering Reading (dBuV) + Corr Factor (dB/m)

RADIATED EMISSION LIMIT

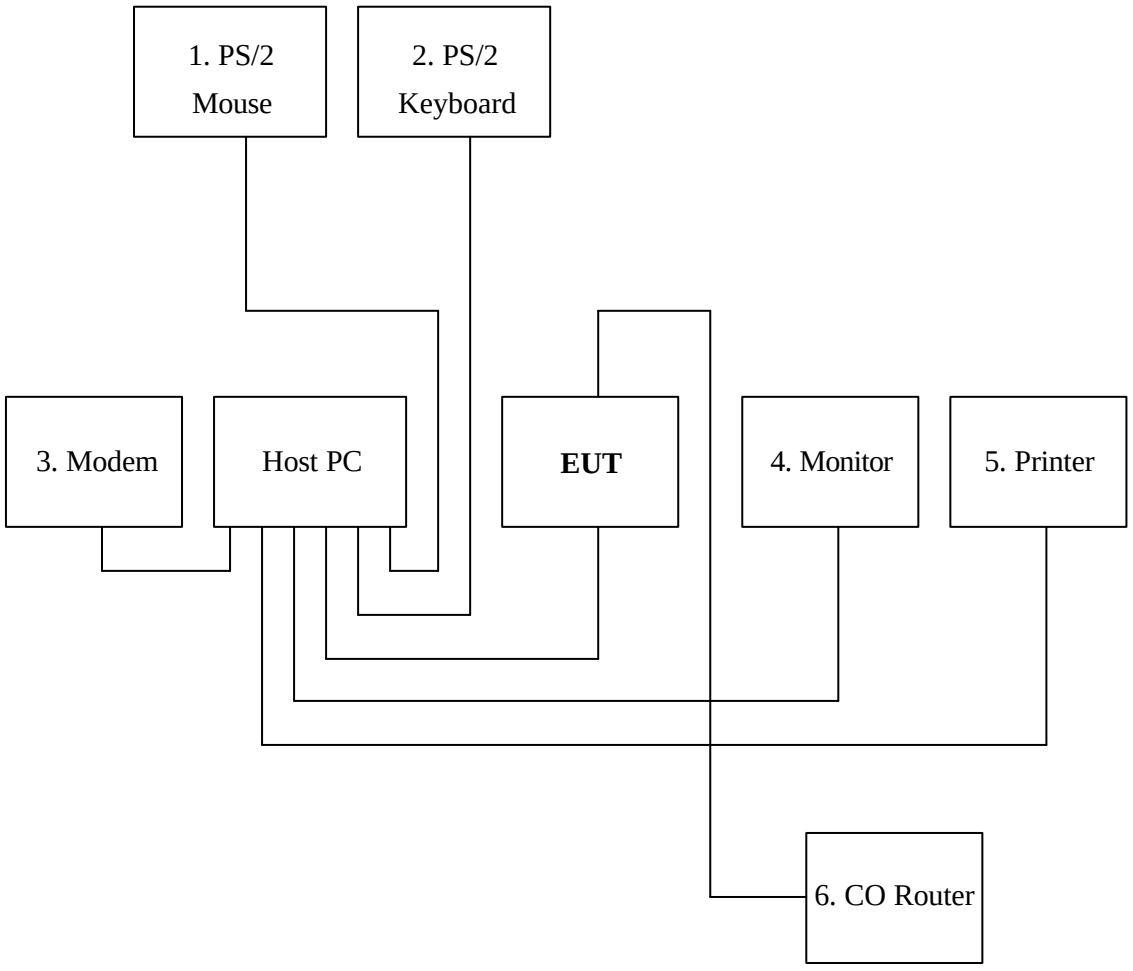
Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBu V/m/ Q.P.)
30-230	10	30
230-1000	10	37

Note: The lower limit shall apply at the transition frequency.

BLOCK DIAGRAM OF TEST SETUP

System Diagram of Connections between EUT and Simulators

EUT: USB ADSL
Trade Name: EDIMAX
Model Number: AR-7024UM



SUMMARY DATA
(LINE CONDUCTED TEST)

Model Number: AR-7024UM **Location:** Conducted Room

Tested by: Elvis Zeng

Test Model: Mode 1

Test Results: Passed

Temperature: 24℃ **Humidity:** 67%RH

(The chart below shows the highest readings taken from the final data)

Frequency Range Investigated (150 kHz TO 30 MHz)							
Freq (MHz)	**Meter Reading (dBuV)**	**C.F. (dB)**	**Corrected Reading (dBuV)**	**Limits (dBuV)**	**Margin (dB)**	**Reading Type (P/Q/A)**	**Line (L1/L2)**
3.881	**45.76**	**0.22**	**45.98**	**56.00**	**-10.02**	**P**	**L1**
11.996	**51.41**	**0.38**	**51.79**	**60.00**	**-8.21**	**P**	**L1**
11.996	**44.67**	**0.38**	**45.05**	**50.00**	**-4.95**	**A**	**L1**
16.573	**51.63**	**0.42**	**52.05**	**60.00**	**-7.95**	**P**	**L1**
16.573	**39.27**	**0.42**	**39.69**	**50.00**	**-10.31**	**A**	**L1**
24.015	**49.16**	**0.48**	**49.64**	**60.00**	**-10.36**	**P**	**L1**
3.700	**46.30**	**0.21**	**46.52**	**56.00**	**-9.48**	**P**	**L2**
3.700	**31.63**	**0.21**	**31.85**	**46.00**	**-14.15**	**A**	**L2**
16.573	**50.93**	**0.42**	**51.35**	**60.00**	**-8.65**	**P**	**L2**
16.573	**38.44**	**0.42**	**38.86**	**50.00**	**-11.14**	**A**	**L2**

C.F.(Correction Factor)=Insertion Loss + Cable Loss
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading - Limits

P=Peak Reading L1=Hot
Q=Quasi-peak L2=Neutral
A=Average Reading

Comments: **N/A**

SUMMARY DATA
(RADIATED EMISSION TEST)

Model Number: AR-7024UM **Location:** Site # E

Tested by: Elvis Zeng **Polar:** Vertical / Horizontal– 10m

Test Mode: Mode 1

Test Results: Passed

Temperature: 23℃ **Humidity:** 68%RH

(The chart below shows the highest readings taken from the final data)

Frequency Range Investigated (30 MHz TO 1000 MHz)							
Freq (MHz)	**Meter Reading (dBuV)**	**C.F. (dB/m)**	**Corrected Reading (dBuV/m)**	**Limits (dBuV/m)**	**Margin (dB)**	**Reading Type P/Q/A**	**Pol. H/V**
176.650	**35.40**	**-9.54**	**25.86**	**30.00**	**-4.14**	**P**	**V**
200.094	**36.45**	**-8.27**	**28.18**	**30.00**	**-1.82**	**Q**	**V**
388.682	**36.76**	**-1.63**	**35.13**	**37.00**	**-1.87**	**Q**	**V**
600.028	**31.40**	**1.34**	**32.74**	**37.00**	**-4.26**	**P**	**V**
314.989	**36.60**	**-3.74**	**32.86**	**37.00**	**-4.14**	**P**	**H**
388.703	**36.06**	**-1.63**	**34.43**	**37.00**	**-2.57**	**Q**	**H**

C.F.(Correction Factor)=Antenna Factor + Cable Loss - Amplifier Gain (+ Attenuator 3dB)
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading - Limits
P=Peak Reading H=Horizontal Polarization/Antenna
Q=Quasi-peak V=Vertical Polarization/Antenna
A=Average Reading

Comments: **N/A**

SECTION 2 EN 61000-3-2 & EN 61000-3-3 (POWER HARMONICS & VOLTAGE FLUCTUATION / FLICKER)

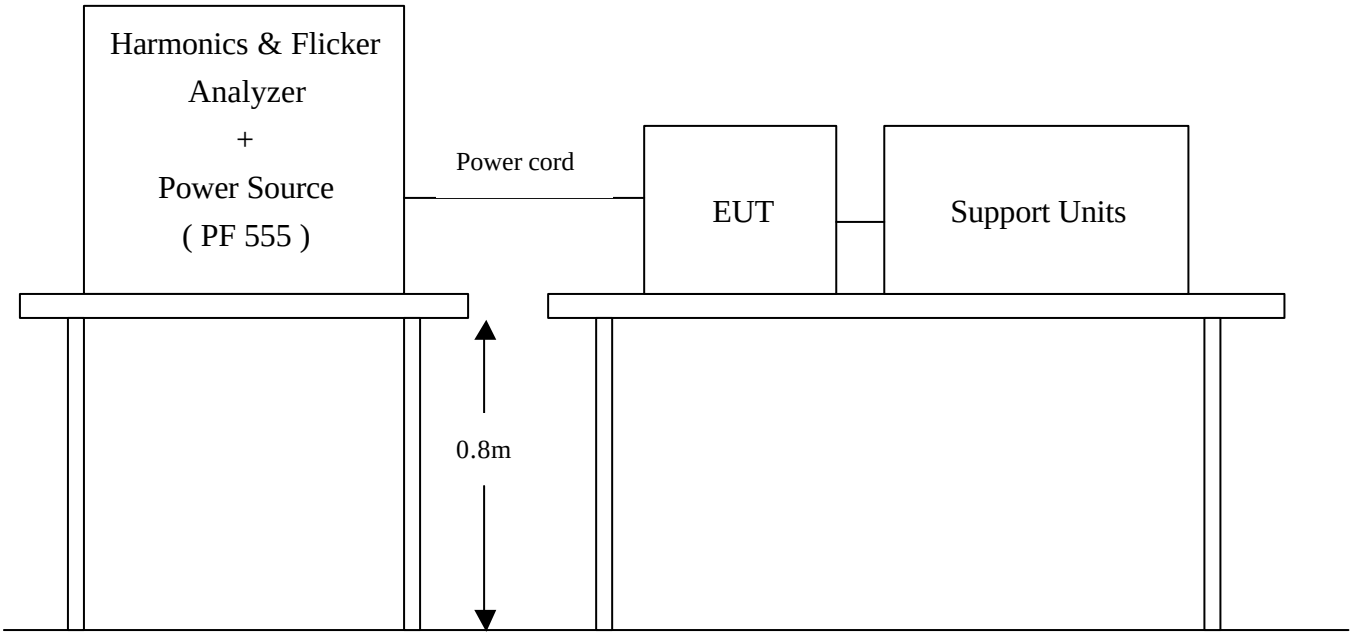
POWER HARMONICS MEASUREMENT

Port : AC Power Port
Basic Standard : EN 61000-3-2 (2000)
Limits : ☐ Class A, ☑ Class D
Temperature : 20^0C
Humidity : 60%
Test By : Elvis Zeng

VOLTAGE FLUCTUATION/FLICKER MEASUREMENT

Port : AC Power Port
Basic Standard : EN 61000-3-3 (1995 + A1: 2001)
Limits : § of EN 61000-3-3
Temperature : 20^0C
Humidity : 60%
Test By : Elvis Zeng

Block Diagram of Test Setup:



Result:

Please see the attached test data.

Approved by: Bill Huang 12.03

Signature: Elvis Zeng Date: 1.24

Final Test Result: PASS

Settings and Test Conditions Compliant to the Standard: Yes

Test Equipment Used:

Agilent 6842A Harmonic/Flicker Test System with serial number:
HFTS Software Version: A.05.03
Date Last Calibrated:

Test Equipment Settings:

Line Voltage: 230.00 V	Current Measurement Range: High
Line Frequency: 50 Hz	Measurement Window Type: Rectangular
Device Class: D	Measurement Delay: 10 seconds
RMS Current Limit: 13.1 A	Quasi-stationary Test Duration: 30.00 minutes
Peak Current Limit: 80.8 A	Class Determination Pre-test Duration: 10.00 seconds
Number of Records: 5625	

Overrides:

Test Limit Source (Power Measurements/Statistics): Maximum
Power Overrides: None
Test Limit Overrides: None

Pre-test Results for Class Determination:

Percent in Envelope: 99.5% Voltage THD Out-of-Specification?: No
Class D Equipment?: Yes Fundamental Current: 0.233 A

RMS Voltage: 229.8 V	RMS Current: 0.3 A	Real Power: 52.9 W
Frequency: 50.0 Hz	Peak Current: 0.7 A	Apparent Power: 71.3 VA
Voltage THD: 0.02%	Current THD: 66.27%	Power Factor: 0.742
Maximum Power: 52.9 W	Mean Power: 52.6 W	

Active Power Statistics:

100th Percentile: 52.9 W	99th Percentile: 52.6 W	95th Percentile: 52.6
90th Percentile: 52.6 W	50th Percentile: 52.4 W	

Total Number of Failures:	Total Number of Errors:
None	None

Pre-Test Source Voltage Harmonics Data:

Harmonic Number	Limit (%)	Limit (Volts)	Max (%)	Max (Volts)
Fund.			100.0	229.843
2	0.20	0.460	0.006	0.015
3	0.90	2.069	0.010	0.022
4	0.20	0.460	0.005	0.011
5	0.40	0.919	0.001	0.002
6	0.20	0.460	0.003	0.006
7	0.30	0.690	0.006	0.013
8	0.20	0.460	0.001	0.003
9	0.20	0.460	0.005	0.012
10	0.20	0.460	0.003	0.008
11	0.10	0.230	0.000	0.001
12	0.10	0.230	0.003	0.006
13	0.10	0.230	0.002	0.004
14	0.10	0.230	0.001	0.003
15	0.10	0.230	0.004	0.009
16	0.10	0.230	0.002	0.005
17	0.10	0.230	0.002	0.005
18	0.10	0.230	0.002	0.006
19	0.10	0.230	0.003	0.008
20	0.10	0.230	0.002	0.004
21	0.10	0.230	0.002	0.005
22	0.10	0.230	0.003	0.007
23	0.10	0.230	0.003	0.007
24	0.10	0.230	0.002	0.004
25	0.10	0.230	0.002	0.004
26	0.10	0.230	0.003	0.007
27	0.10	0.230	0.003	0.007
28	0.10	0.230	0.001	0.003
29	0.10	0.230	0.003	0.006
30	0.10	0.230	0.002	0.004
31	0.10	0.230	0.002	0.004
32	0.10	0.230	0.001	0.003
33	0.10	0.230	0.002	0.005
34	0.10	0.230	0.002	0.004
35	0.10	0.230	0.002	0.004
36	0.10	0.230	0.002	0.004
37	0.10	0.230	0.002	0.005
38	0.10	0.230	0.001	0.003
39	0.10	0.230	0.002	0.005
40	0.10	0.230	0.001	0.003

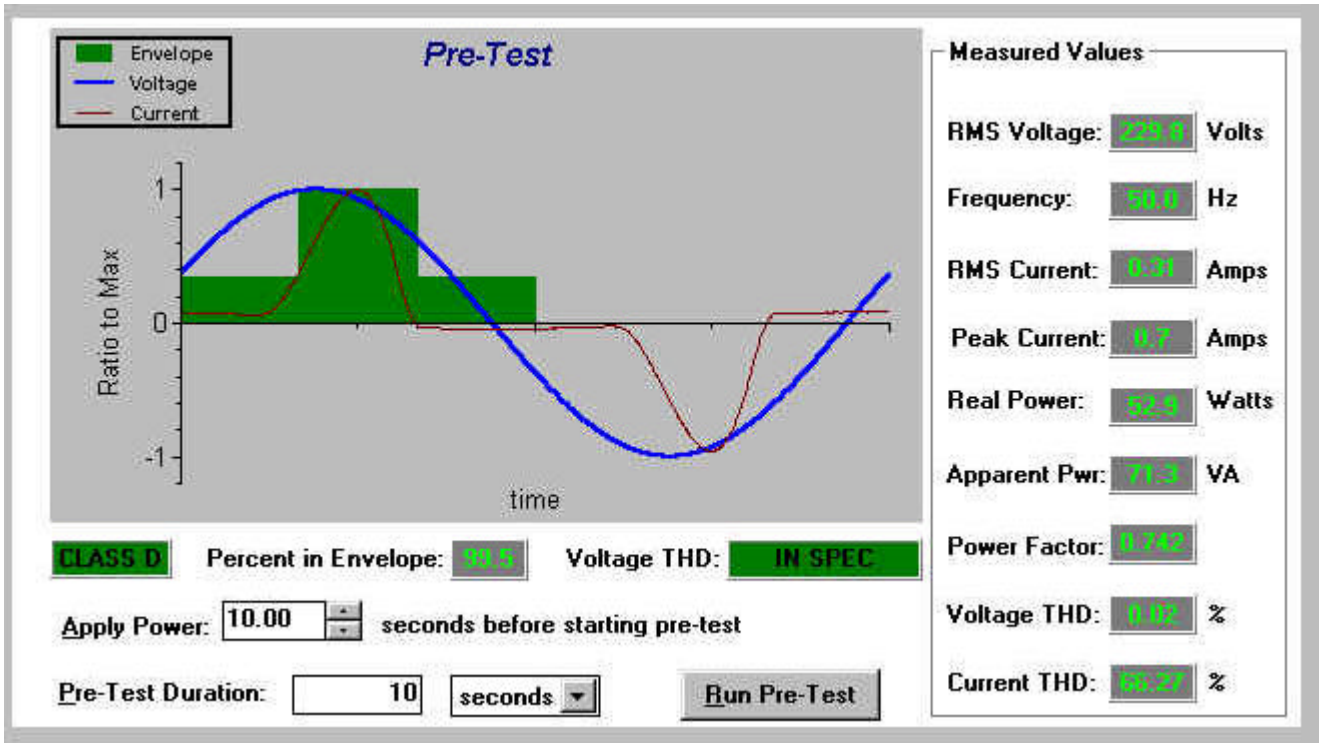
Final Test Data:

Harmonic Number	Standard Limit (A rms)	Maximum Value (A rms)	Maximum Value (% Limit)	Mean Value (A rms)	Mean Value (% Limit)	Standard Deviation (A rms)	Standard Deviation (% Limit)	Pass (P) or Fail (F)
Fund.		0.3906		0.2321		0.0096		
2		0.0035		0.0003		0.0002		
3	2.3000	0.2727	11.9	0.1772	7.7	0.0058	0.3	P
4		0.0016		0.0001		0.0001		
5	1.1400	0.1166	10.2	0.0942	8.3	0.0014	0.1	P
6		0.0007		0.0001		0.0001		
7	0.7700	0.0342	4.4	0.0312	4.1	0.0001	0.0	P
8		0.0007		0.0001		0.0000		
9	0.4000	0.0277	6.9	0.0192	4.8	0.0005	0.1	P
10		0.0004		0.0001		0.0000		
11	0.3300	0.0144	4.4	0.0143	4.3	0.0002	0.1	P
12		0.0004		0.0001		0.0000		
13	0.2100	0.0118	5.6	0.0067	3.2	0.0003	0.1	P
14		0.0004		0.0001		0.0000		
15	0.1500	0.0076	5.1	0.0071	4.7	0.0000	0.0	P
16		0.0003		0.0001		0.0000		
17	0.1324	0.0071	5.4	0.0047	3.5	0.0001	0.1	P
18		0.0004		0.0001		0.0000		
19	0.1184	0.0055	4.7	0.0041	3.4	0.0001	0.1	P
20		0.0003		0.0001		0.0000		
21	0.1071	0.0046	4.3	0.0037	3.5	0.0001	0.0	P
22		0.0003		0.0000		0.0000		
23	0.0978	0.0038	3.9	0.0027	2.8	0.0001	0.1	P
24		0.0002		0.0000		0.0000		
25	0.0900	0.0030	3.4	0.0027	3.0	0.0001	0.1	P
26		0.0003		0.0000		0.0000		
27	0.0833	0.0027	3.3	0.0020	2.4	0.0000	0.1	P
28		0.0002		0.0001		0.0000		
29	0.0776	0.0023	2.9	0.0018	2.4	0.0000	0.1	P
30		0.0002		0.0000		0.0000		
31	0.0726	0.0022	3.0	0.0016	2.3	0.0000	0.1	P
32		0.0002		0.0000		0.0000		
33	0.0682	0.0017	2.5	0.0013	2.0	0.0000	0.1	P
34		0.0002		0.0000		0.0000		
35	0.0643	0.0017	2.7	0.0014	2.1	0.0000	0.1	P
36		0.0002		0.0000		0.0000		
37	0.0608	0.0014	2.3	0.0011	1.8	0.0000	0.1	P
38		0.0002		0.0000		0.0000		
39	0.0577	0.0015	2.6	0.0011	1.8	0.0001	0.2	P
40		0.0002		0.0000		0.0000		

Final Test Statistics:

Harmonic Number	Standard Limit (A rms)	Maximum Value (A rms)	Maximum Value (% Limit)	>50% of Limit (Count)	>75% of Limit (Count)	>90% of Limit (Count)	>95% of Limit (Count)	>100% of Limit (Count)	Pass(P) or Fail(F)
Fund.		0.3906							
2		0.0035		0	0	0	0	0	
3	2.3000	0.2727	11.9	0	0	0	0	0	P
4		0.0016		0	0	0	0	0	
5	1.1400	0.1166	10.2	0	0	0	0	0	P
6		0.0007		0	0	0	0	0	
7	0.7700	0.0342	4.4	0	0	0	0	0	P
8		0.0007		0	0	0	0	0	
9	0.4000	0.0277	6.9	0	0	0	0	0	P
10		0.0004		0	0	0	0	0	
11	0.3300	0.0144	4.4	0	0	0	0	0	P
12		0.0004		0	0	0	0	0	
13	0.2100	0.0118	5.6	0	0	0	0	0	P
14		0.0004		0	0	0	0	0	
15	0.1500	0.0076	5.1	0	0	0	0	0	P
16		0.0003		0	0	0	0	0	
17	0.1324	0.0071	5.4	0	0	0	0	0	P
18		0.0004		0	0	0	0	0	
19	0.1184	0.0055	4.7	0	0	0	0	0	P
20		0.0003		0	0	0	0	0	
21	0.1071	0.0046	4.3	0	0	0	0	0	P
22		0.0003		0	0	0	0	0	
23	0.0978	0.0038	3.9	0	0	0	0	0	P
24		0.0002		0	0	0	0	0	
25	0.0900	0.0030	3.4	0	0	0	0	0	P
26		0.0003		0	0	0	0	0	
27	0.0833	0.0027	3.3	0	0	0	0	0	P
28		0.0002		0	0	0	0	0	
29	0.0776	0.0023	2.9	0	0	0	0	0	P
30		0.0002		0	0	0	0	0	
31	0.0726	0.0022	3.0	0	0	0	0	0	P
32		0.0002		0	0	0	0	0	
33	0.0682	0.0017	2.5	0	0	0	0	0	P
34		0.0002		0	0	0	0	0	
35	0.0643	0.0017	2.7	0	0	0	0	0	P
36		0.0002		0	0	0	0	0	
37	0.0608	0.0014	2.3	0	0	0	0	0	P
38		0.0002		0	0	0	0	0	
39	0.0577	0.0015	2.6	0	0	0	0	0	P
40		0.0002		0	0	0	0	0	

Remarks


Envelope
Voltage
Current
Pre-Test
Ratio to Max
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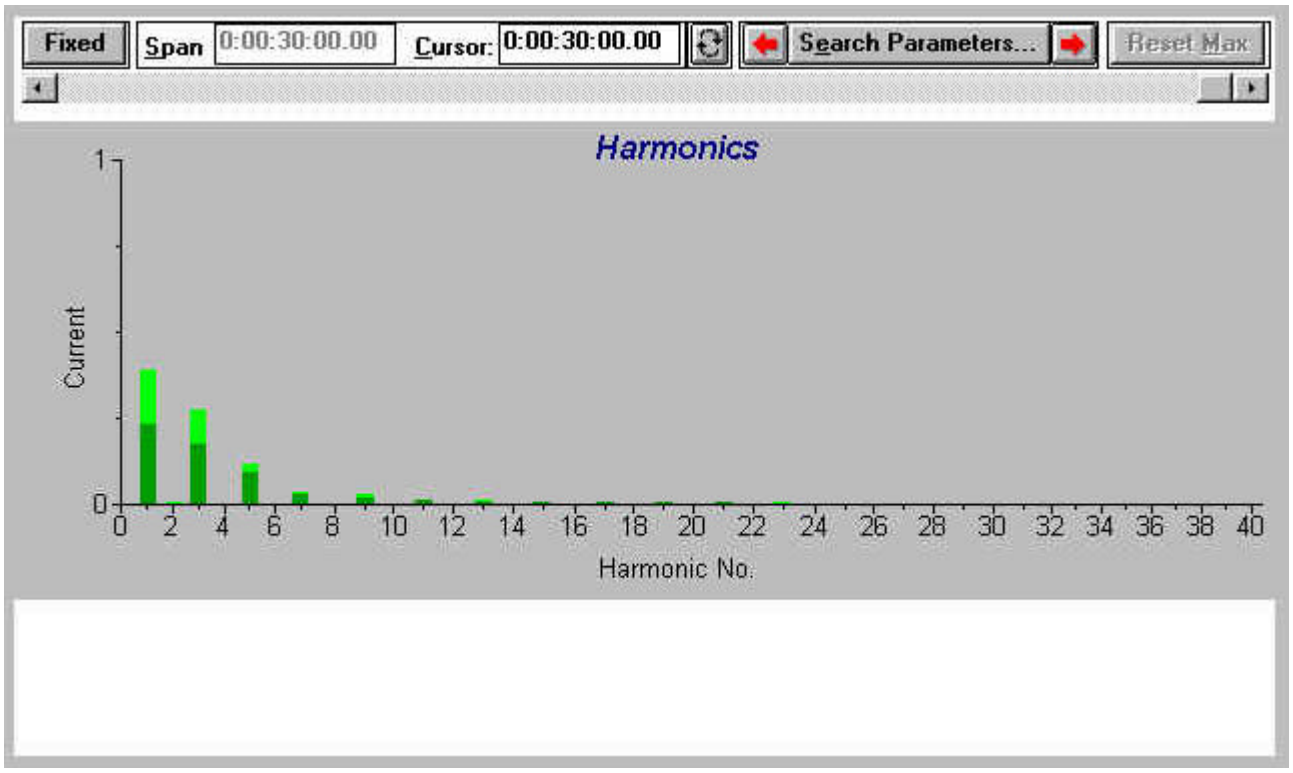
0
-1
time
Measured Values
RMS Voltage: 229.8 Volts
Frequency: 50.0 Hz
RMS Current: 0.31 Amps
Peak Current: 0.7 Amps
Real Power: 52.9 Watts
Apparent Pwr: 71.3 VA
Power Factor: 0.742
Voltage THD: 0.02 %
Current THD: 66.27 %
CLASS D
Percent in Envelope: 98.5
Voltage THD: IN SPEC
Apply Power: 10.00 seconds before starting pre-test
Pre-Test Duration: 10 seconds
Run Pre-Test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Reset Max
Harmonics
Current
1
0
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40
Harmonic No.

Approved by: Bill Huang 1/30.03

Signature: Elvis Zeng Date: 1.30

Final Test Result: PASS

Settings and Test Conditions Compliant to the Standard: Yes

Test Equipment Used:

Agilent 6842A Harmonic/Flicker Test System with serial number:
HFTS Software Version: A.05.03
Date Last Calibrated:

Test Equipment Settings:

Line Voltage: 230.00 V	Pst Integration Time: 10 minutes
Line Frequency: 50 Hz	Pst Integration Periods: 3
Measurement Delay: 10.0 seconds	Test Duration: 00:30:00
RMS Current Limit: 13.1 A	Peak Current Limit: 80.8 A

Overrides:

Pst/Plt Test Limit Overrides: None
RMS Test Limit Overrides: None

Equipment Under Test Pre-test Results:

RMS Voltage: 229.8 V	RMS Current: 0.3 A	Real Power: 52.5 W
Frequency: 50.0 Hz	Peak Current: 0.7 A	Apparent Power: 70.8 VA
Voltage THD: 0.02%	Current THD: 66.32%	Power Factor: 0.742

Total Number of Failures:

Pst: 0	Dc: 0	
Plt: 0	Dmax: 0	
	Dt: 0	

Total Number of Errors:

None

Final Test Summary:

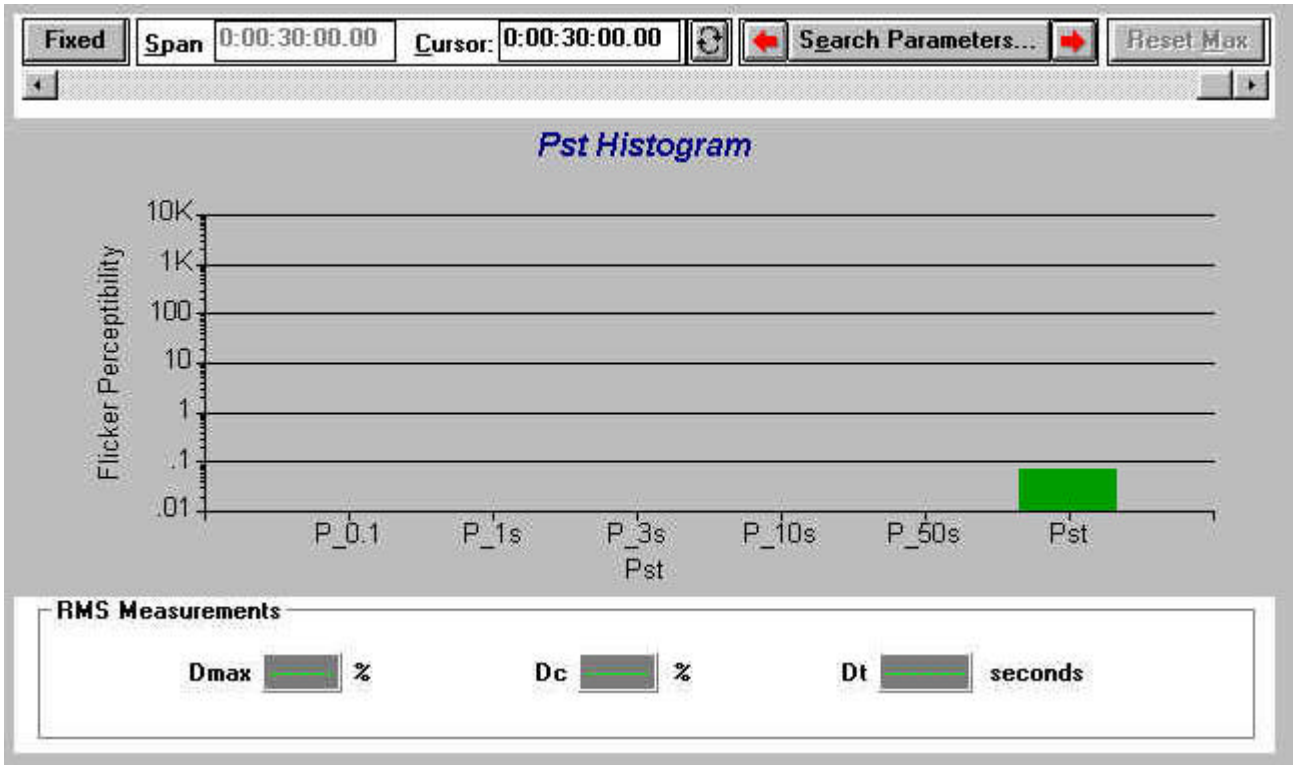
Dmax:	0.0	Pst:	0.07	P_0.1:	0.01
Dc:	0.0	Plt:	0.07	P_1s:	0.01
Dt:	0.00	Plt Threshold:	0.65	P_3s:	0.01
				P_10s:	0.01
				P_50s:	0.01

Final Test Data by Integration Period:

Number of Integration Periods: 3

Integration Periods	Pst (P.U.)	P_0.1 (P.U.)	P_1.0s (P.U.)	P_3.0s (P.U.)	P_10s (P.U.)	P_50s (P.U.)	Dc (%)	Dmax (%)	Dt (seconds)	Pass(P) or Fail(F)
1	0.07	0.01	0.01	0.01	0.01	0.01	-----	-----	--------	N/A
2	0.07	0.01	0.01	0.01	0.01	0.01	-----	-----	--------	N/A
3	0.07	0.01	0.01	0.01	0.01	0.01	-----	-----	--------	N/A

Remarks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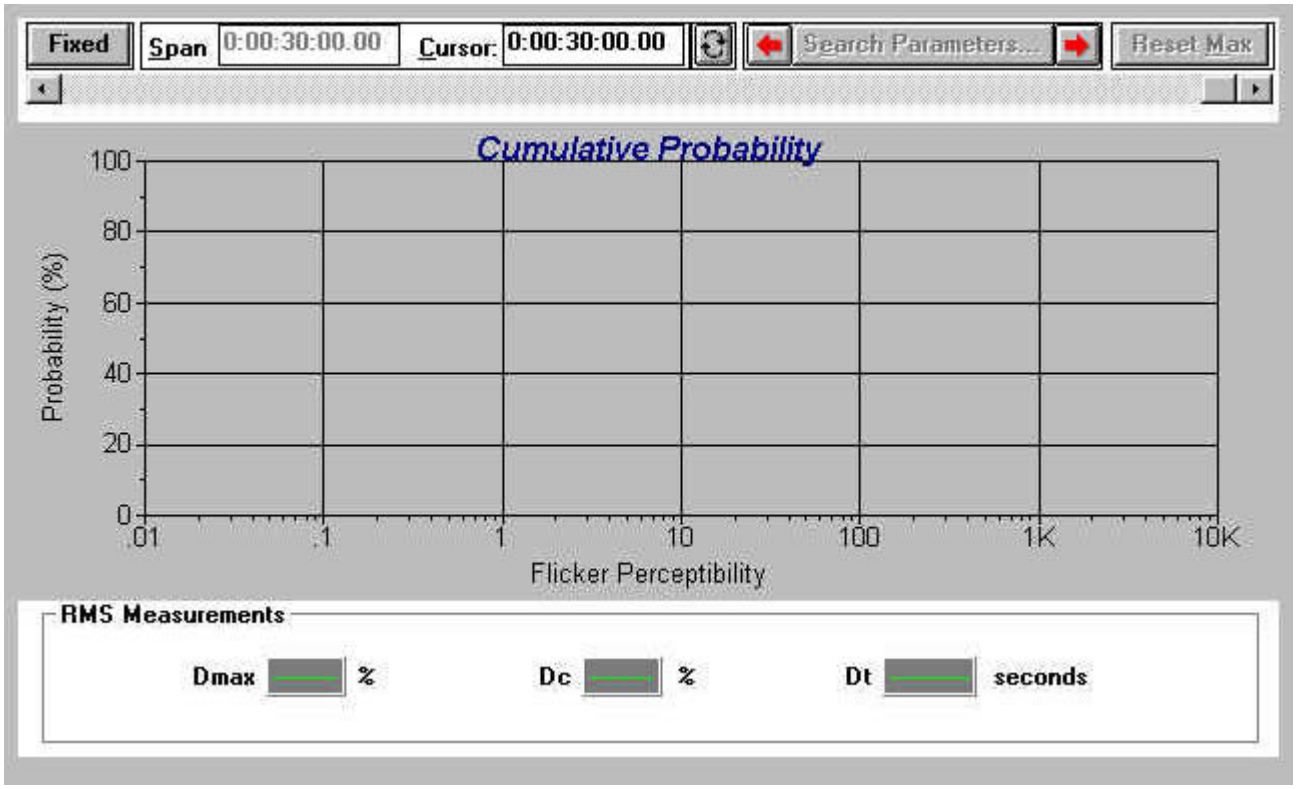
P_3s
P_10s
P_50s
Pst
Pst
RMS Measurements
Dmax %
Dc %
Dt seconds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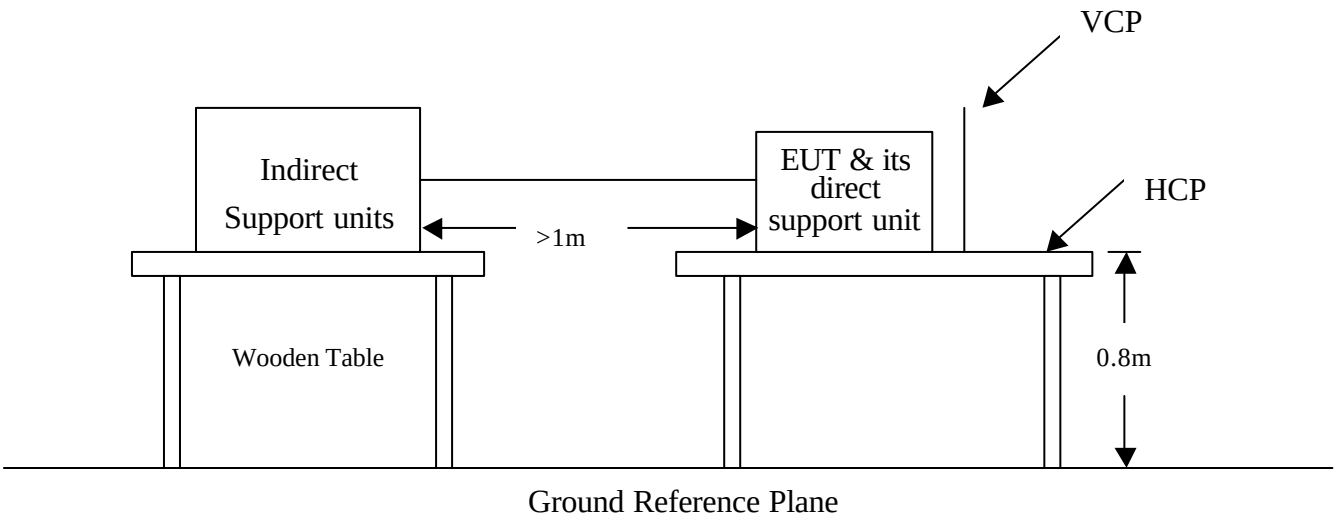
.1
1
10
100
1K
10K
Flicker Perceptibility
RMS Measurements
Dmax %
Dc %
Dt seconds

SECTION 3 IEC 61000-4-2 (ELECTROSTATIC DISCHARGE)

ELECTROSTATIC DISCHARGE (ESD) IMMUNITY TEST

Port	**:** Enclosure
Basic Standard	**:** IEC 61000-4-2
Requirements	**:** ±8kV (Air Discharge)
	±4kV (Contact Discharge)
	±4kV (Indirect Discharge)
Performance Criteria	**:** B (Standard require)
Temperature/Humidity	**:** 20^0C / 60%
Pressure	**:** 1015 mbar
Test By	**:** Elvis Zeng

Block Diagram of Test Setup:



Test Procedure:

1. The EUT was located 0.1 m minimum from all sides of the HCP.
2. The indirect support units were located 1 m minimum away from the EUT, but direct support unit was/were located at same location as EUT on the HCP and keep at a distance of 10 cm with EUT.
3. A communication test program was loaded and executed in Windows mode.
4. PC sent transmit data to remote side via EUT.
5. As per the requirement of EN 55024; applying direct contact discharge at the sides other than front of EUT at minimum 50 discharges (25 positive and 25 negative) if applicable, can't be applied direct contact discharge side of EUT then the indirect discharge shall be applied. One of the test points shall be subjected to at least 50 indirect discharge (contact) to the front edge of horizontal coupling plane.
6. Other parts of EUT where it is not possible to perform contact discharge then selecting appropriate points of EUT for air discharge, a minimum of 10 single air discharges shall be applied.
7. The application of ESD to the contact of open connectors is not required.
8. Putting a mark on EUT to show tested points. The following test condition was followed during the tests.

Note: As per IEC 61000-4-2:2001, with two 470k bleed resistors cable is connected between the EUT and HCP during the test applicable for power ungrounded or battery operating unit only.

The electrostatic discharges were applied as follows:

Amount of Discharges	Voltage	Coupling	Result (Pass/Fail)
Mini 25 /Point	±4kV	Contact Discharge	Pass
Mini 25 /Point	±4kV	Indirect Discharge HCP (Front)	Pass
Mini 25 /Point	±4kV	Indirect Discharge VCP (Back)	Pass
Mini 25 /Point	±4kV	Indirect Discharge VCP (Left)	Pass
Mini 25 /Point	±4kV	Indirect Discharge VCP (Right)	Pass
Mini 10 /Point	±8kV	Air Discharge	Pass

**** The tested points to EUT, please refer to attached page.**
(Blue arrow mark for contact discharge, red arrow mark for air discharge.)

Performance & Result:

☑ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☑ ***PASS*** ☐ ***FAILED***

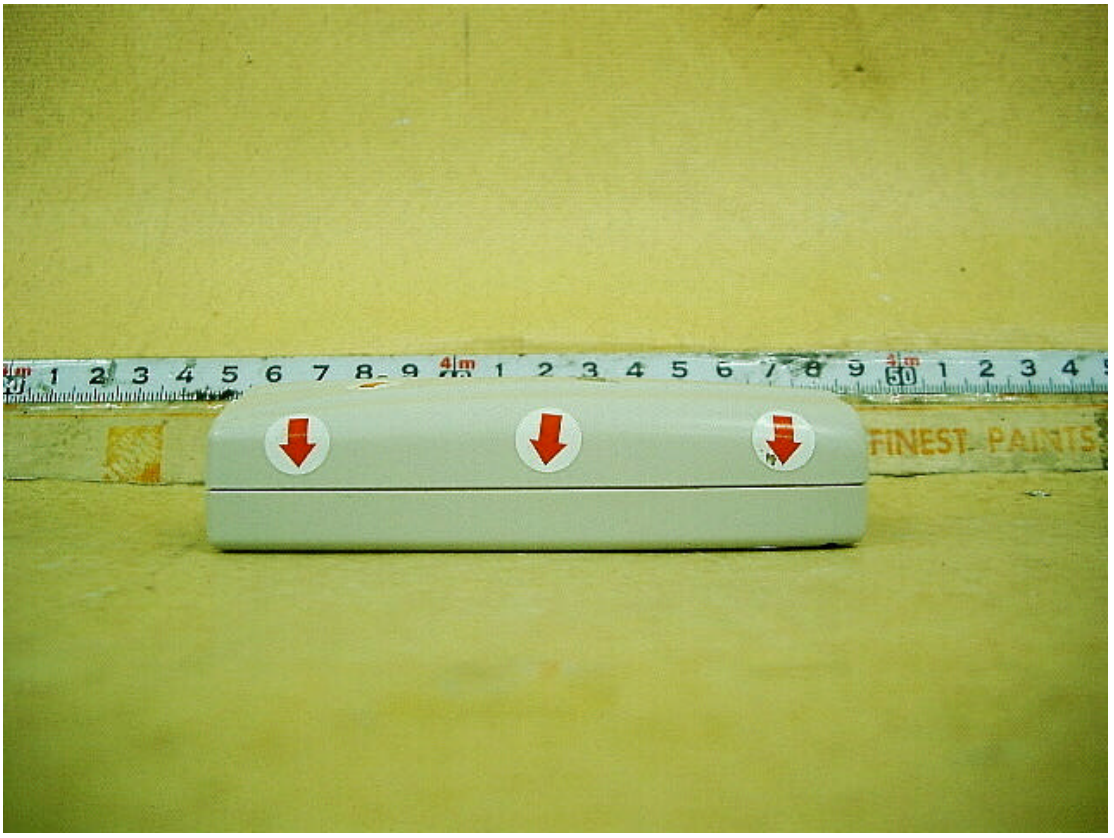
Observation: No any function degraded during the tests.

The Tested Points of EUT

(Photo 1 of 6)

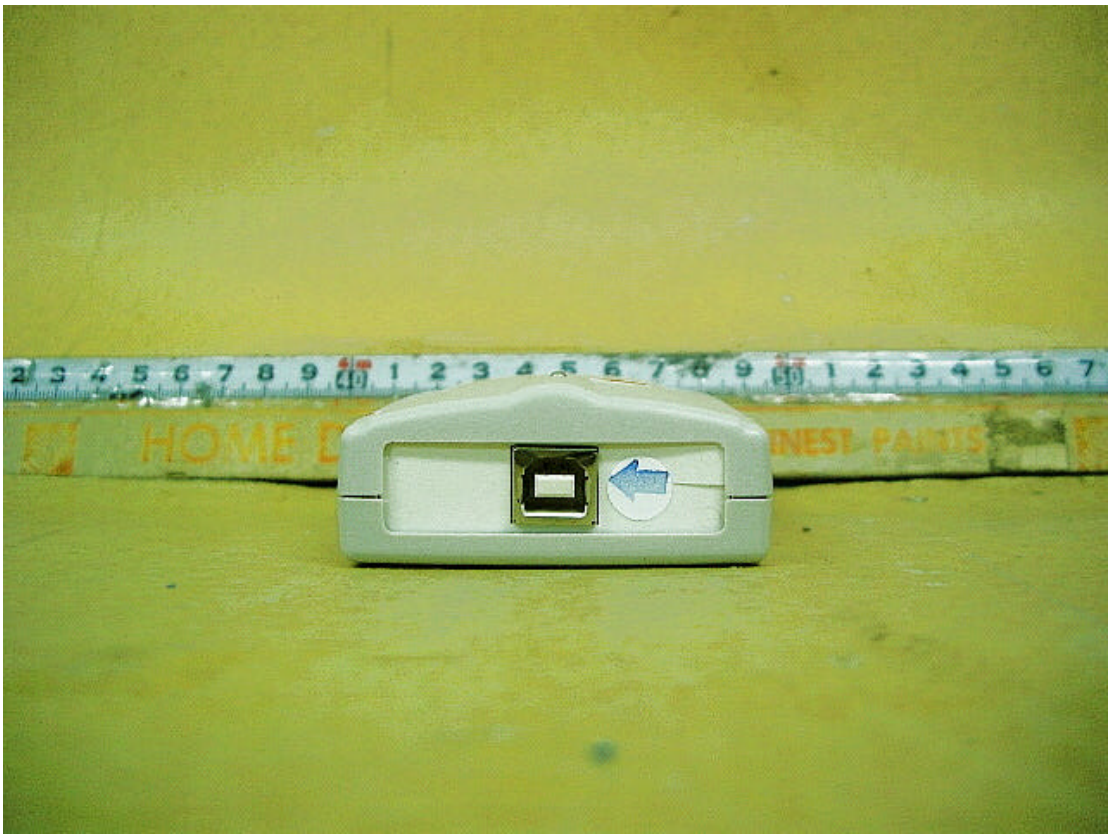
(Photo 2 of 6)

(Photo 3 of 6)

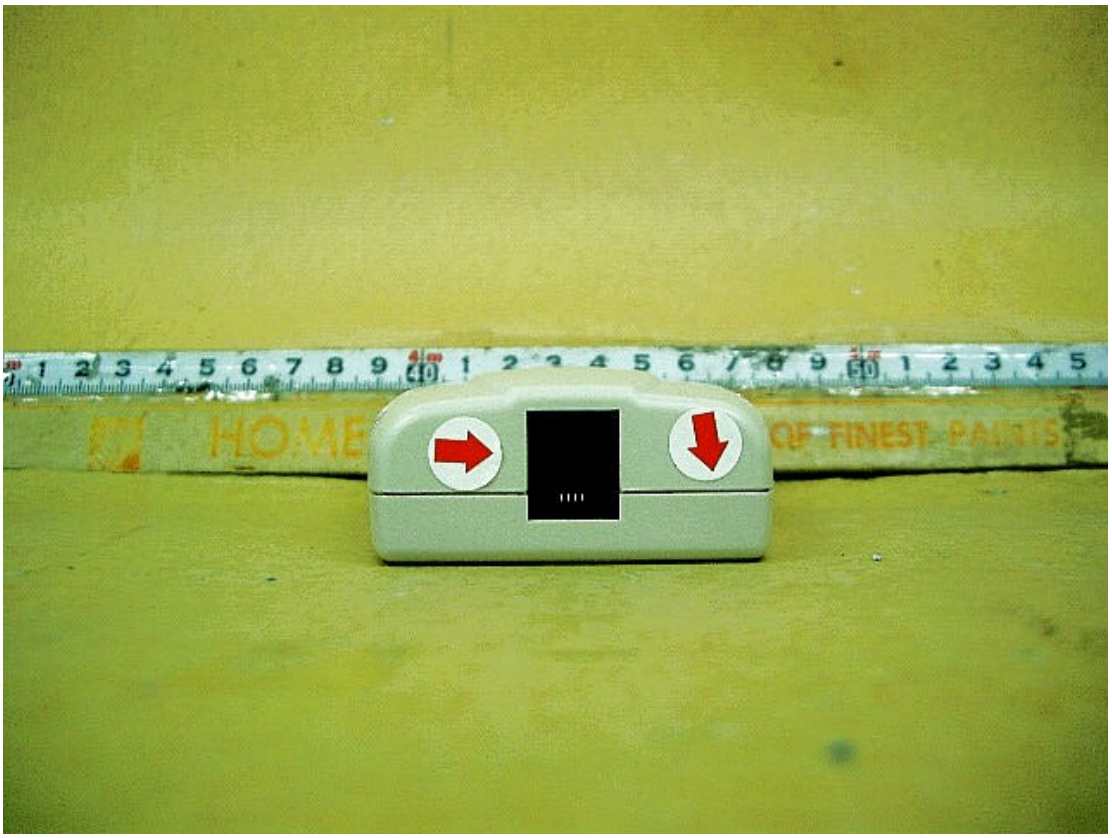


(Photo 4 of 6)

(Photo 5 of 6)



(Photo 6 of 6)

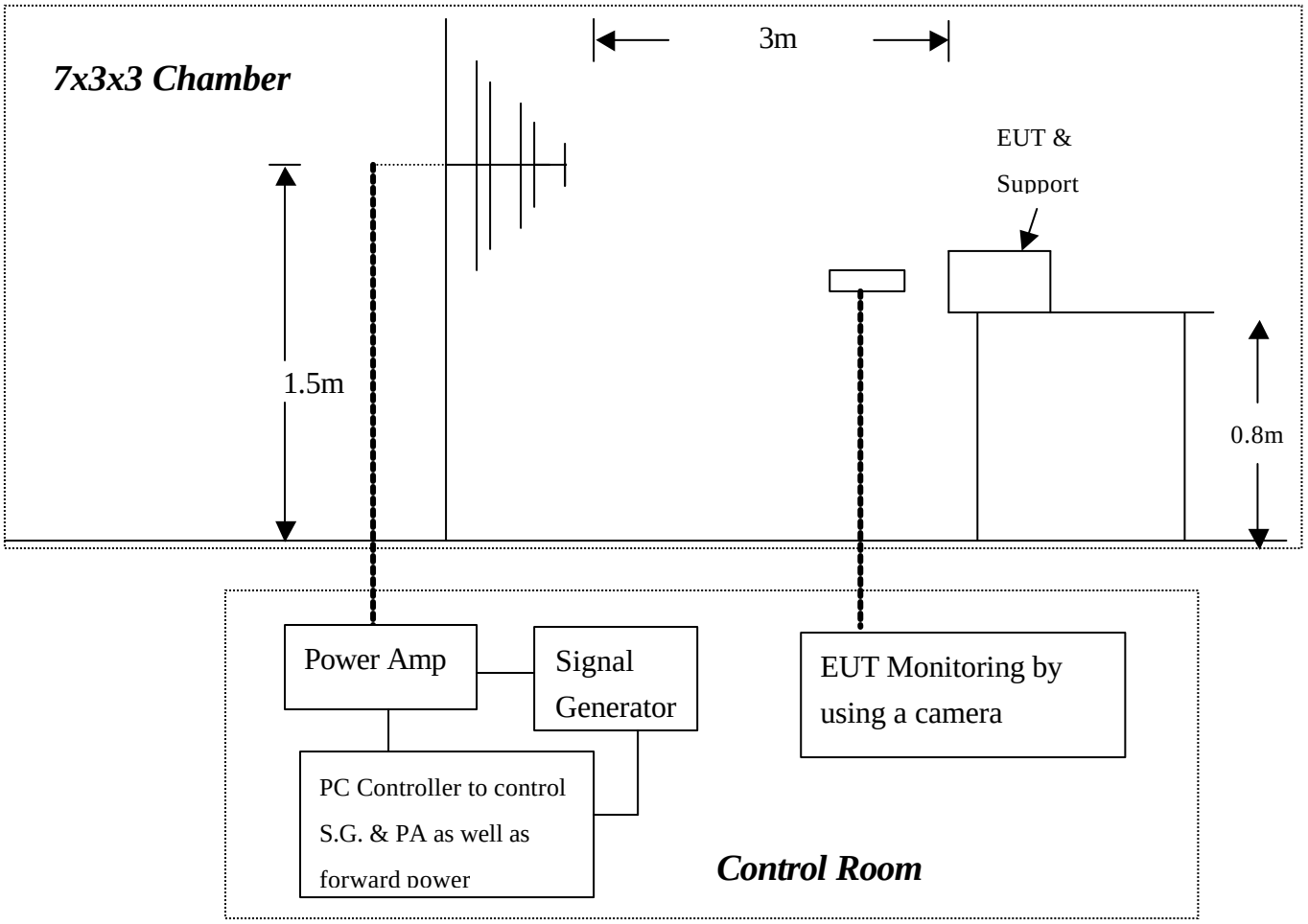


SECTION 4 IEC 61000-4-3 (RADIATED ELECTROMAGNETIC FIELD)

RADIATED ELECTROMAGNETIC FIELD IMMUNITY TEST

Port	**:**	Enclosure
Basic Standard	**:**	IEC 61000-4-3
Requirements	**:**	3 V/m / with 80% AM. 1kHz Modulation
Performance Criteria	**:**	A (Standard require)
Tester	**:**	Elvis Zeng
Temperature	**:**	24℃
Humidity	**:**	74%
Pressure	**:**	1014 mbar
Note	**:**	The EUT not have acoustic interfaces, the annex A of EN 55024 should not be applied.

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located at the edge of supporting table keep 3 meter away from transmitting antenna, it just the calibrated square area of field uniformity.
2. Adjusting the cables to be exposed to the electromagnetic filed as possible.
3. Performing a Radiated Emission Scan in range of 80 to 1000 MHz prior to do RS test and records the more higher emission frequencies for the reference of RS test, due to antenna effectiveness.
4. Adjusting the monitoring camera to monitor the "H" message as clear as possible.
5. Setting the testing parameters of RS test software per IEC 61000-4-3.
6. Referring to the tested data of step 3 to performing the RS test from 80 to 1000 MHz.
7. Recording the test result in following table.
8. Changing the EUT to the other side and repeat step 3 to 6, until 4 sides of EUT were verified.

IEC 61000-4-3 Final test conditions:

Test level : 3V/m
Steps : 1 % of fundamental
Dwell Time : 3 sec

Range (MHz)	Field	Modulation	Polarity	Position (°)	Result (Pass/Fail)
80-1000	3V/m	Yes	H	Front	Pass
80-1000	3V/m	Yes	V	Front	Pass
80-1000	3V/m	Yes	H	Right	Pass
80-1000	3V/m	Yes	V	Right	Pass
80-1000	3V/m	Yes	H	Back	Pass
80-1000	3V/m	Yes	V	Back	Pass
80-1000	3V/m	Yes	H	Left	Pass
80-1000	3V/m	Yes	V	Left	Pass

Performance & Result:

[V] **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

[ ] **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

[ ] **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

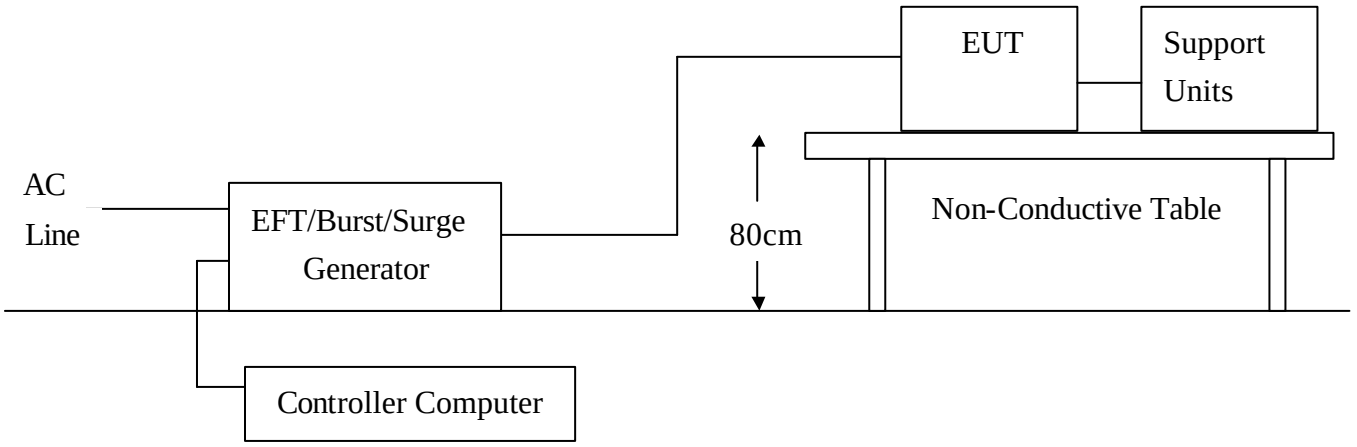
[V] ***PASS*** [ ] ***FAILED***
Observation: No any function degraded during the tests.

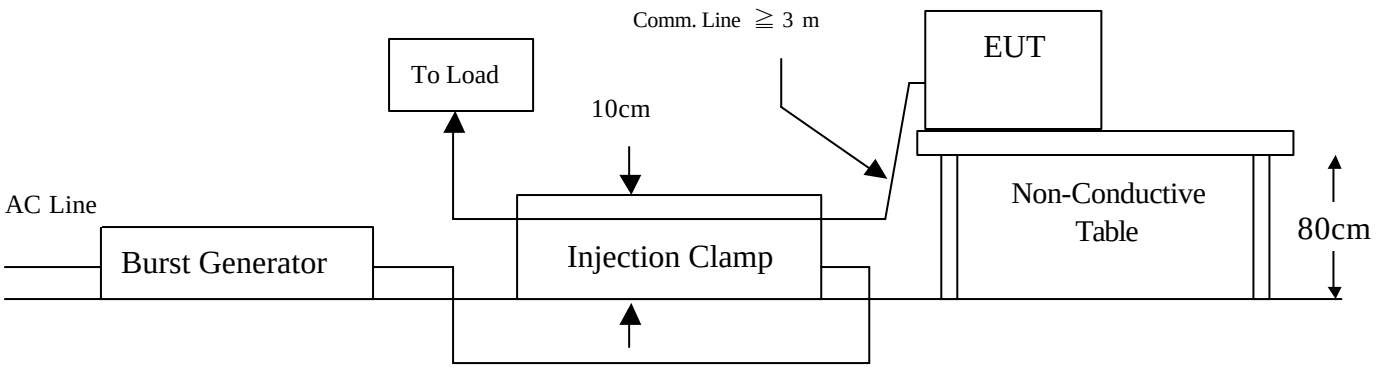
SECTION 5 IEC 61000-4-4 (FAST TRANSIENTS/BURST)

FAST TRANSIENTS/BURST IMMUNITY TEST

Port	**:** AC Power Port and RJ11 Port
Basic Standard	**:** IEC 61000-4-4
Requirements	**:** ±1kV for AC Power Port
	±0.5kV for RJ11 Port
Performance Criteria	**:** B (Standard require)
Temperature	**:** 20^0C
Humidity	**:** 60%
Pressure	**:** 1015 mbar
Test By	**:** Elvis Zeng

Block Diagram of Test Setup:





Test Procedure:

1. The EUT and support units were located on a wooden table 0.8 m away from ground reference plane.
2. A 1.0 meter long power cord was attached to EUT during the test.
3. The length of communication cable between communication port and clamp was keeping within 1 meter.
4. A test program was loaded and executed in Windows mode.
5. The data was display on the monitor and filling the screens.
6. The test program exercised related support units sequentially.
7. Repeating step 3 to 6 through the test.
8. Recording the test result as shown in following table.

Test conditions:
Impulse Frequency: 5kHz
Tr/Th: 5/50ns
Burst Duration: 15ms
Burst Period: 300ms

Inject Line	Voltage kV	Inject Method	Result (Pass/Fail)
L1	±1	Direct	Pass
N	±1	Direct	Pass
PE	±1	Direct	Pass
L1+N	±1	Direct	Pass
L1+PE	±1	Direct	Pass
N+PE	±1	Direct	Pass
L1 + N + PE	±1	Direct	Pass
RJ11	±0.5	Clamp	Pass

Performance & Result:

[V] **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

[ ] **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

[ ] **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

[V] ***PASS*** [ ] ***FAILED***

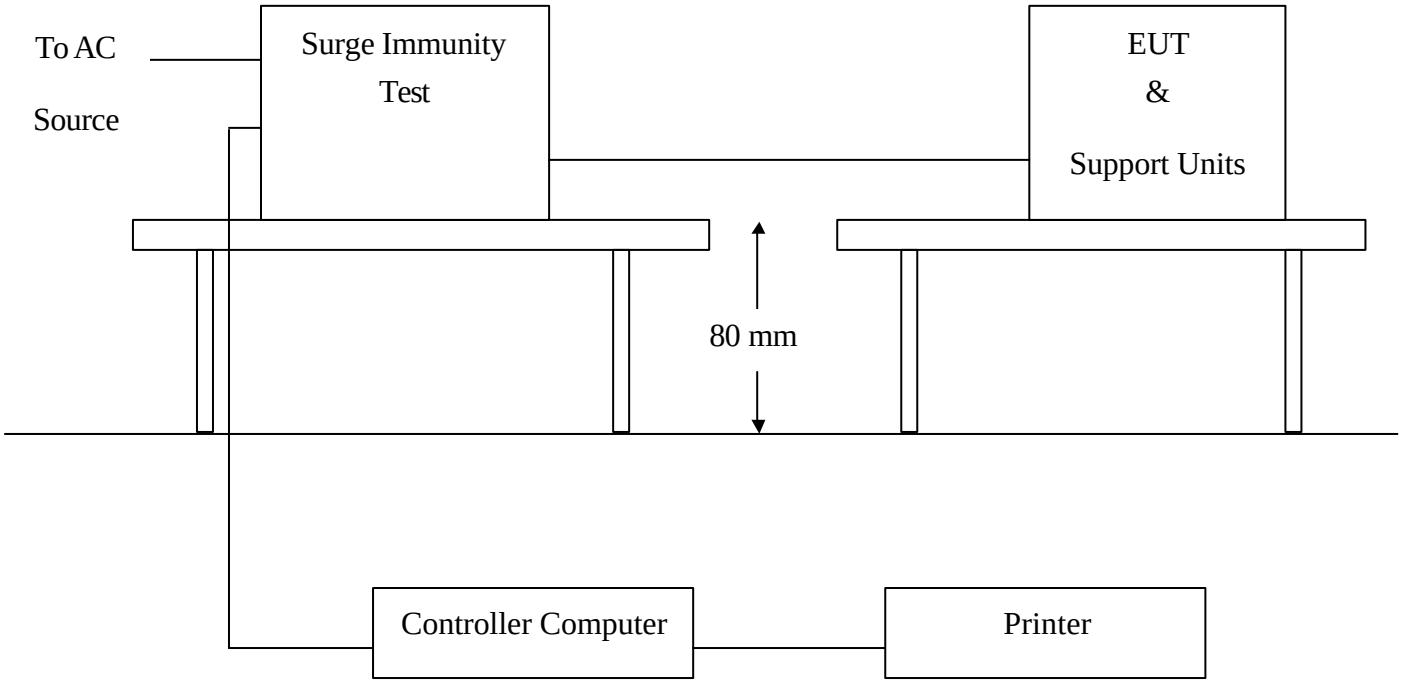
Observation: No any function degraded during the tests.

SECTION 6 IEC 61000-4-5 (SURGE IMMUNITY)

SURGE IMMUNITY TEST

Port	**:**	AC Power Port and RJ11 Port
Basic Standard	**:**	IEC 61000-4-5
Requirements	**:**	+/- 1kV (Line to Line) for AC Power Port
		+/- 2kV (Line to Ground) for AC Power Port
		+/- 1kV for (T, R to Ground) for RJ11 Port
Performance Criteria	**:**	B (Standard require)
Tester	**:**	Elvis Zeng
Temperature	**:**	20℃
Humidity	**:**	60%
Pressure	**:**	1015 mbar

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located on a wooden table 0.8 m away from ground floor.
2. A test program was loaded and executed in Windows mode.
3. The data was display on the monitor and filling the screens.
4. The test program exercised related support units sequentially.
5. Repeating step 3 to 4 through the test.
6. Recording the test result as shown in following table.

Test conditions:
Voltage Waveform : 1.2/50 us
Current Waveform : 8/20 us
Polarity : Positive/Negative
Phase angle : 0°, 90°, 270°
Number of Test : 5

Coupling Line	Voltage (kV)	Polarity	Coupling Method	Result (Pass/Fail)
L1-L2、 L1-PE、 L2-PE	1	Positive	Capacitive	Pass
L1-L2、 L1-PE、 L2-PE	1	Negative	Capacitive	Pass
L1-PE、L2-PE	2	Positive	Capacitive	Pass
L1-PE、L2-PE	2	Negative	Capacitive	Pass
RJ-11	1	Positive	Capacitive	Pass
RJ-11	1	Negative	Capacitive	Pass

Performance & Result:

[V] **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

[ ] **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

[ ] **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

[V] ***PASS*** [ ] ***FAILED***

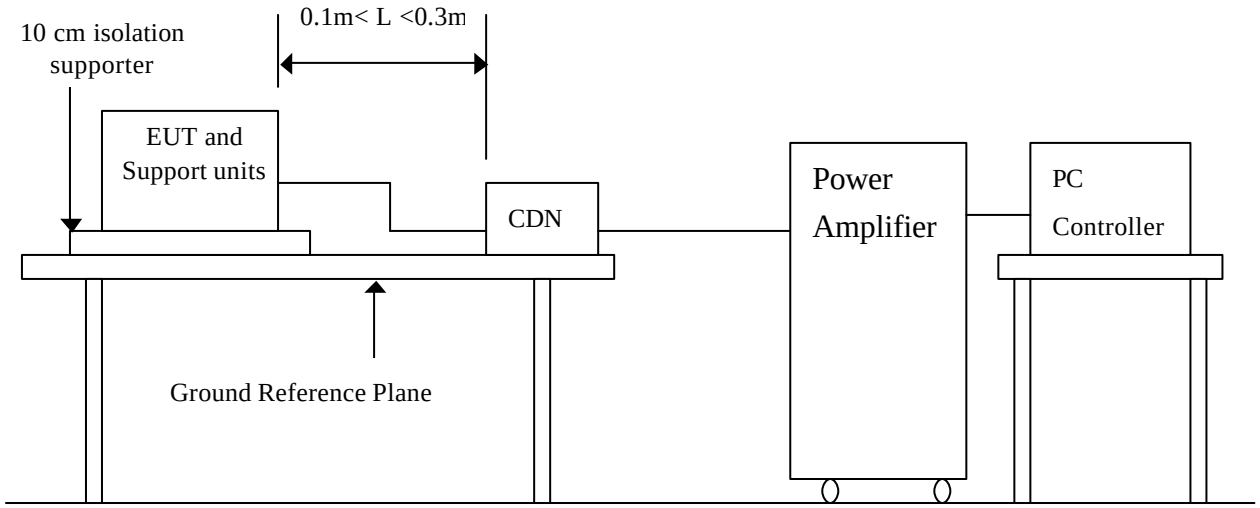
Observation: No any function degraded during the tests.

SECTION 7 IEC 61000-4-6 (CONDUCTED DISTRBANCE/INDUCED BY RADIO-FREQUENCY FIELD)

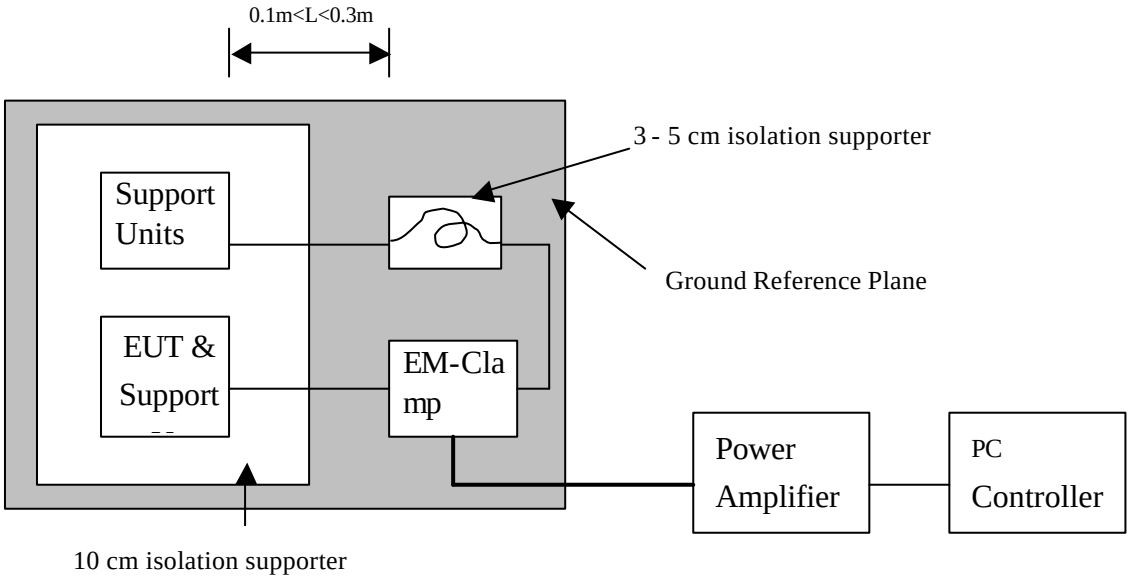
CONDUCTED DISTURBANCE, INDUCED BY RADIO-FREQUENCY FIELDS

Port	**:** AC Power Port and RJ11 Port
Base Standard	**:** IEC 61000-4-6
Requirements	**:** 3 V with 80% AM. Modulation
Injection Method	**:** CDN-M3 for AC Power Port
	RF Current Probe for RJ11 Port
Performance Criteria	**:** A (Standard require)
Temperature	**:** 24^0C
Humidity	**:** 74%
Pressure	**:** 1014 mbar
Test By	**:** Elvis Zeng

Block Diagram of Test Setup:



Top view:



Test Procedure:

1. The EUT and support units were located at a ground reference plane with the interposition of a 0.1 m thickness insulating support and the CDN was located on GRP directly.
2. Transmit data messages were displayed on screen of Monitor.
3. Adjusting the monitoring camera to monitor the transmit data message as clear as possible.
4. Setting the testing parameters of CS test software per EN 61000-4-6.
5. Recording the test result in following table.

Test conditions:

Frequency Range : 0.15MHz-80MHz

Frequency Step : 1% of fundamental

Dwell Time : 3 sec

Range (MHz)	Field	Modulation	Result (Pass/Fail)
0.15-80	3V	Yes	Pass

Performance & Result:

☑ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self-recoverable or can be restored by the operation of controls.

☑ ***PASS*** ☐ ***FAILED***

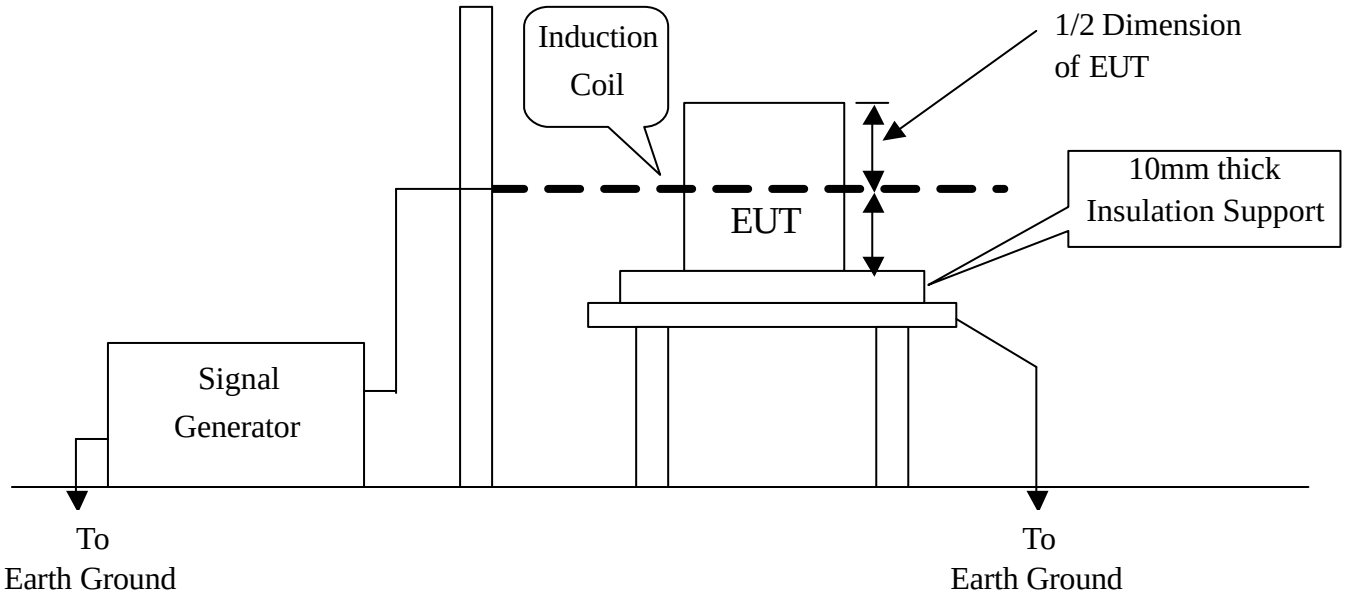
Observation: No any function degraded during the tests.

SECTION 8 IEC 61000-4-8 (POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST)

POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST

Port	**:** Enclosure
Basic Standard	**:** IEC 61000-4-8
Requirements	**:** 1 A/m
Performance Criteria	**:** A (Standard Required)
Temperature	**:** N/A
Humidity	**:** N/A
Pressure	**:** N/A
Test By	**:** N/A

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located on Ground Reference Plane with the interposition of a 0.1 m thickness insulation support.
2. Putting the induction coil on horizontal direction.(X direction)
3. A test program was loaded and executed in Windows mode.
4. The data was sent to the screen of EUT and filling the screen with upper case of "H" patterns.
5. The test program exercised related support units sequentially.
6. Repeating step 3 to 5 through the test.
7. Recording the test result as shown in following table.
8. Rotating the induction coil by 90^0 (Y direction) then repeat step 3 to 7.
9. Rotating the induction coil by 90^0 again (Z direction) then repeat step 3 to 7.

*. Test conditions:
Field Strength: 1A/m
Power Freq.: 50Hz
Orientation: X, Y, Z

Orientation	Field	Result (Pass/Fail)	Remark

***Note: The subject equipment is not intended to be connected to AC mains supply. Therefore, this test is not applicable*

Performance & Result:

☐ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

Observation: The EUT is not containing any component that is susceptible to a 50 Hz or 60 Hz magnetic failed. Therefore, this requirement is not applicable to the EUT.

SECTION 9 IEC 61000-4-11 (VOLTAGE DIPS, SHORT INTERRUPTIONS AND VOLTAGE VARIATIONS)

VOLTAGE DIPS / SHORT INTERRUPTIONS

Port : AC Power Port

Basic Standard : IEC 61000-4-11 (1994)

Requirement : PHASE ANGLE 0, 45, 90, 135, 180, 225, 270, 315 degrees

	Test Level % U_T	Reduction (%)	Duration (periods)	Performance Criteria
Voltage Dips	<5	>95	0.5	B
	70	30	25	C

	Test Level % U_T	Reduction (%)	Duration (periods)	Performance Criteria
Voltage Interruptions	<5	>95	250	C

Test Interval : Min. 10 sec.

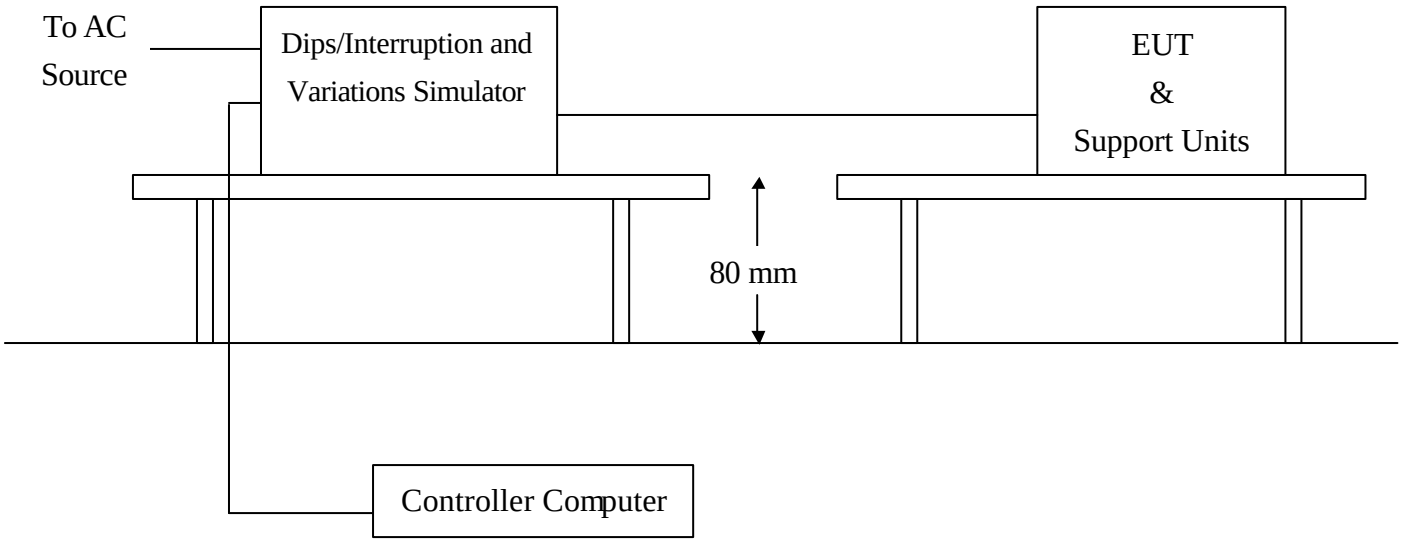
Temperature : 20^0C

Humidity : 60%

Pressure : 1015 mbar

Test By : Elvis Zeng

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located on a wooden table, 0.8 m away from ground floor.
2. A test program was loaded and executed in Windows mode.
3. The data was displayed on the monitor and filling the screens.
4. The test program exercised related support units sequentially.
5. Setting the parameter of tests and then Perform the test software of test simulator.
6. Conditions changes to occur at 0 degree crossover point of the voltage waveform.
7. Repeating step 3 to 4 through the test.
8. Recording the test result in test record form.

Test conditions:

The duration with a sequence of three dips/interruptions with interval of 10s minimum (between each test events)

Voltage Dips:

Test Level % U_T	Reduction (%)	Duration (periods)	Observation	Meet Performance Criteria
0	100	0.5	Normal	A
70	30	25	Normal	A

Voltage Interruptions:

Test Level % U_T	Reduction (%)	Duration (periods)	Observation	Meet Performance Criteria
0	100	250	EUT shut down, But EUT can be auto recovered after EUT restart.	C

Normal: No any functions degrade during and after the test.

Performance & Result:

Criteria A: The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

Criteria B: The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

Criteria C: Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

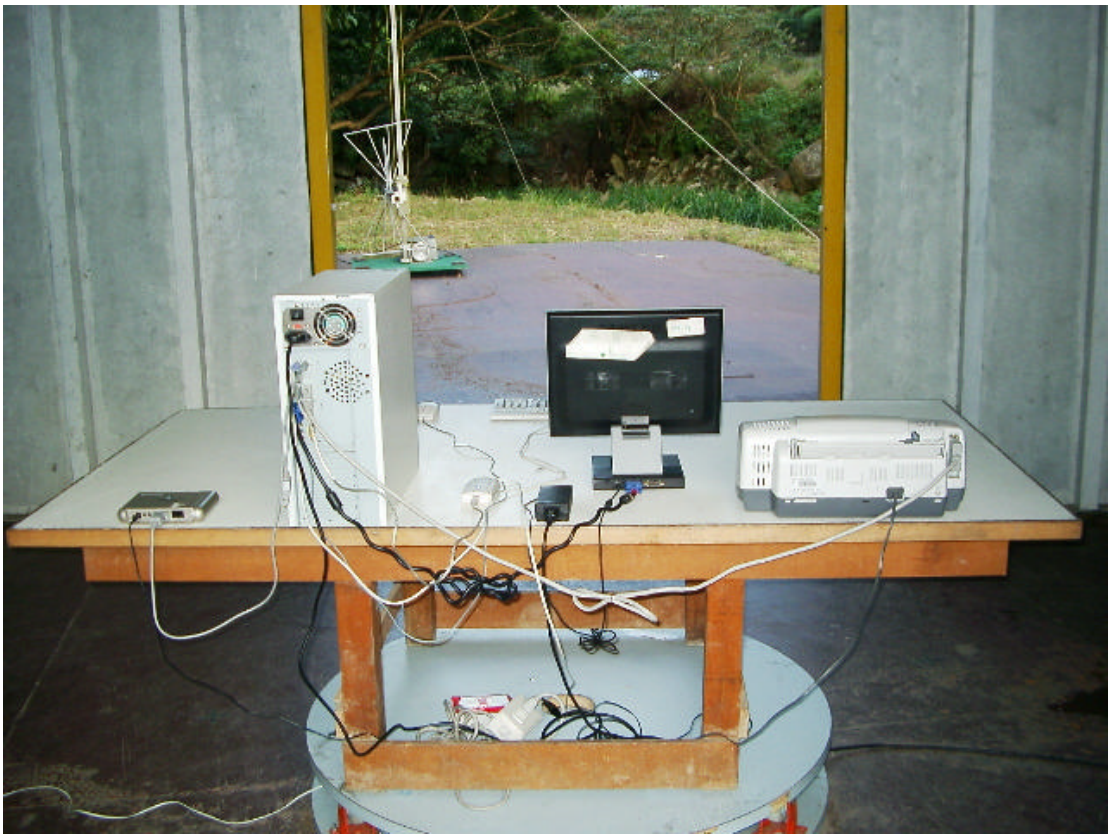
[V] ***PASS***	[ ] ***FAILED***

APPENDIX 1

PHOTOGRAPHS OF TEST SETUP

LINE CONDUCTED EMISSION TEST (EN 55022)

RADIATED EMISSION TEST (EN 55022)



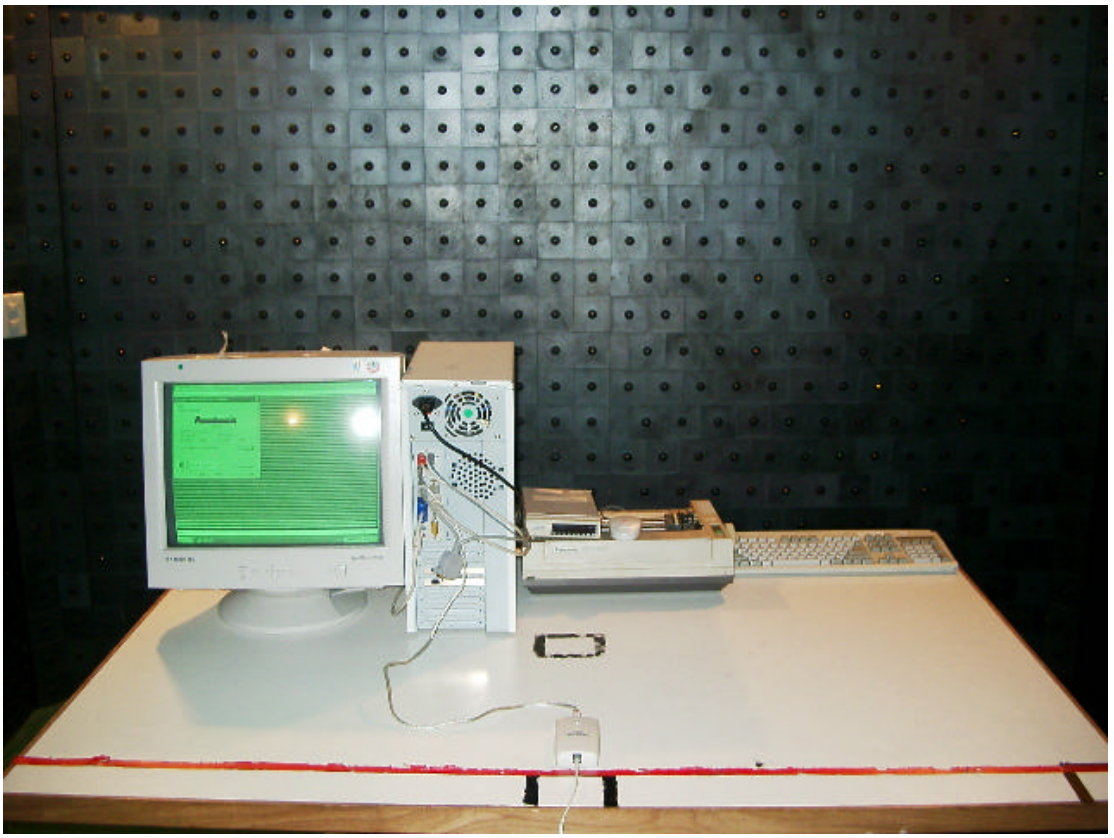
POWER HARMONIC & VOLTAGE FLUCTUATION / FLICKER TEST

(EN 61000-3-2, EN 61000-3-3)

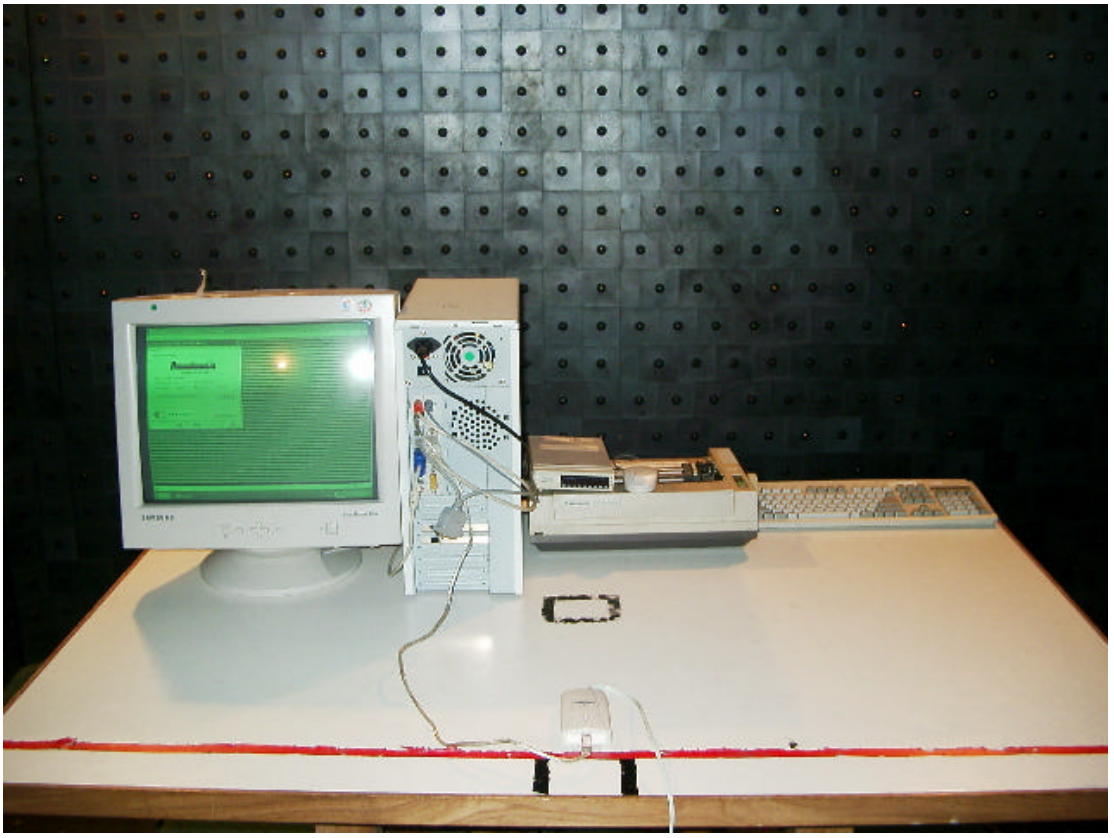
ELECTROSTATIC DISCHARGE TEST (IEC 61000-4-2)

RADIATED ELECTROMAGNETIC FIELD (IEC 61000-4-3)

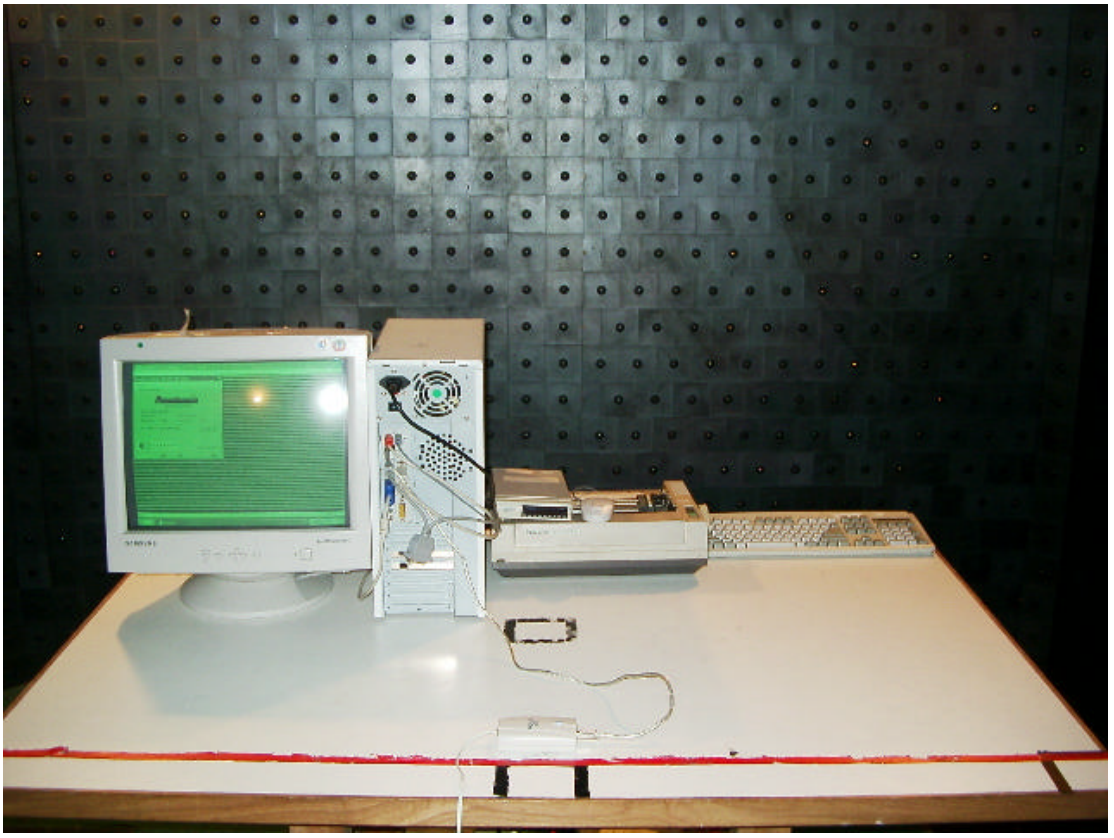
Front View



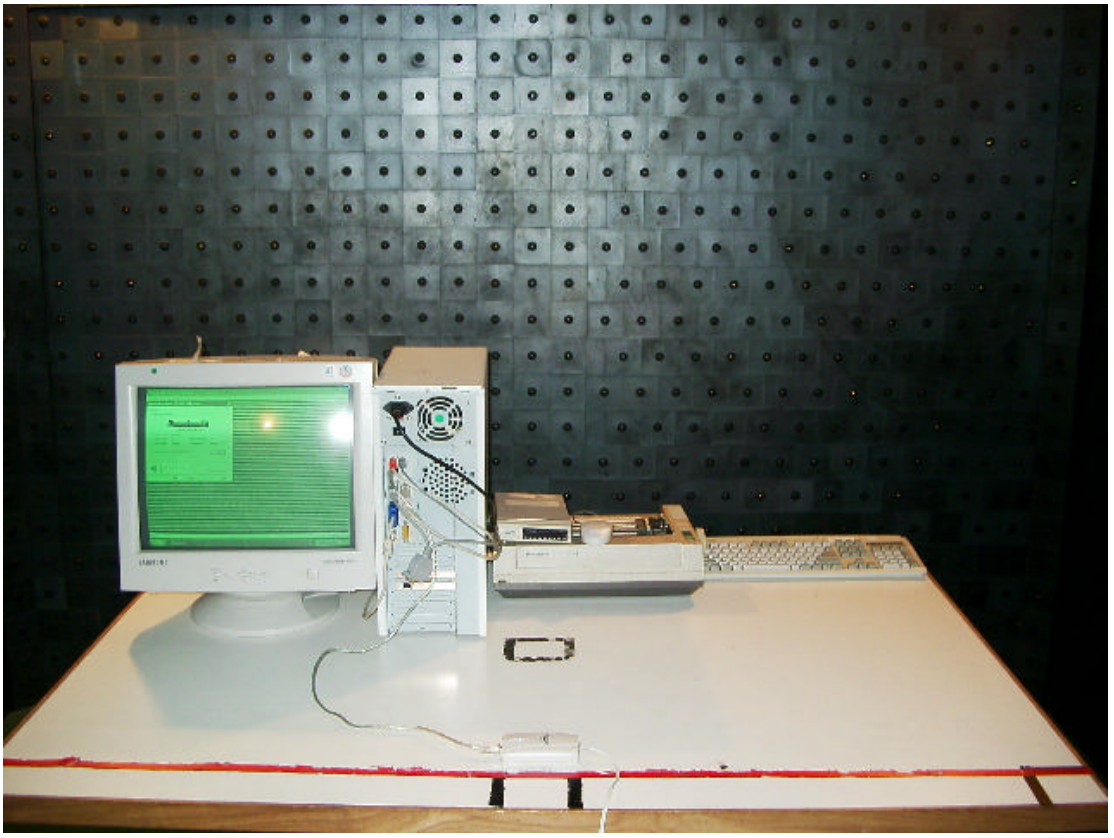
Back View



Left View

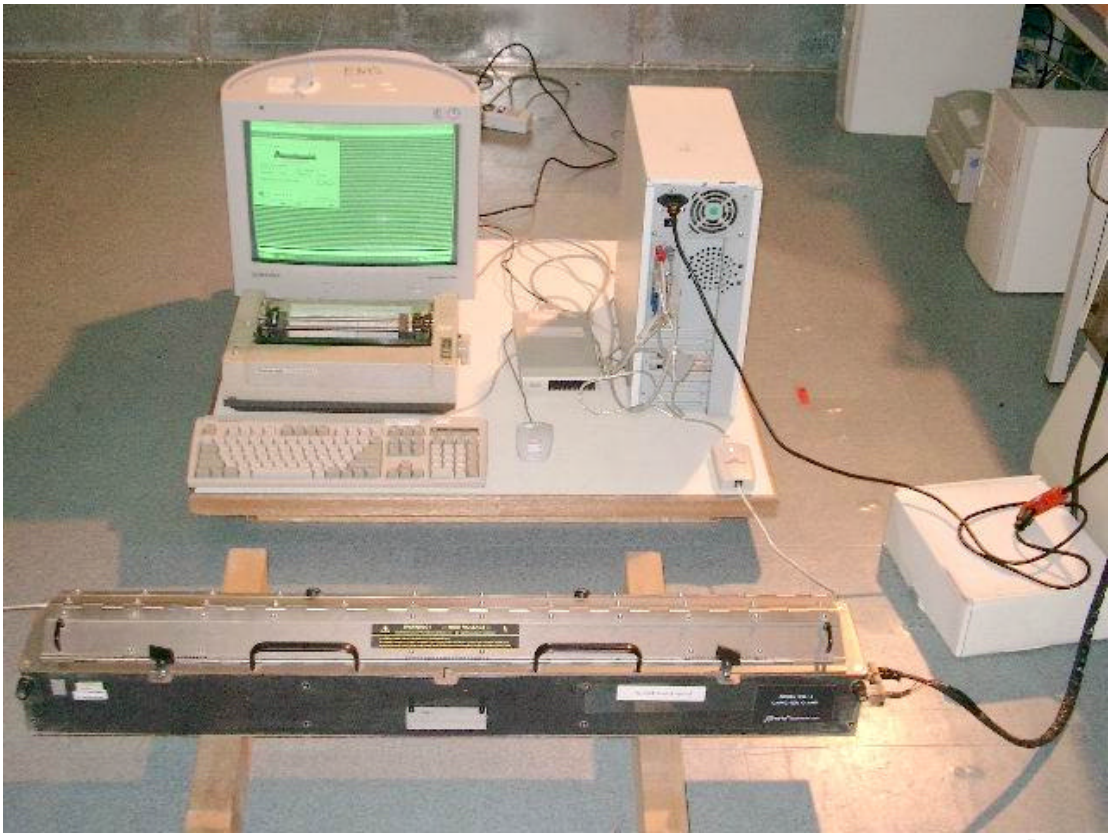


Right View



FAST TRANSIENTS/BURST TEST & SURGE IMMUNITY TEST (IEC 61000-4-4/5 FOR POWER)

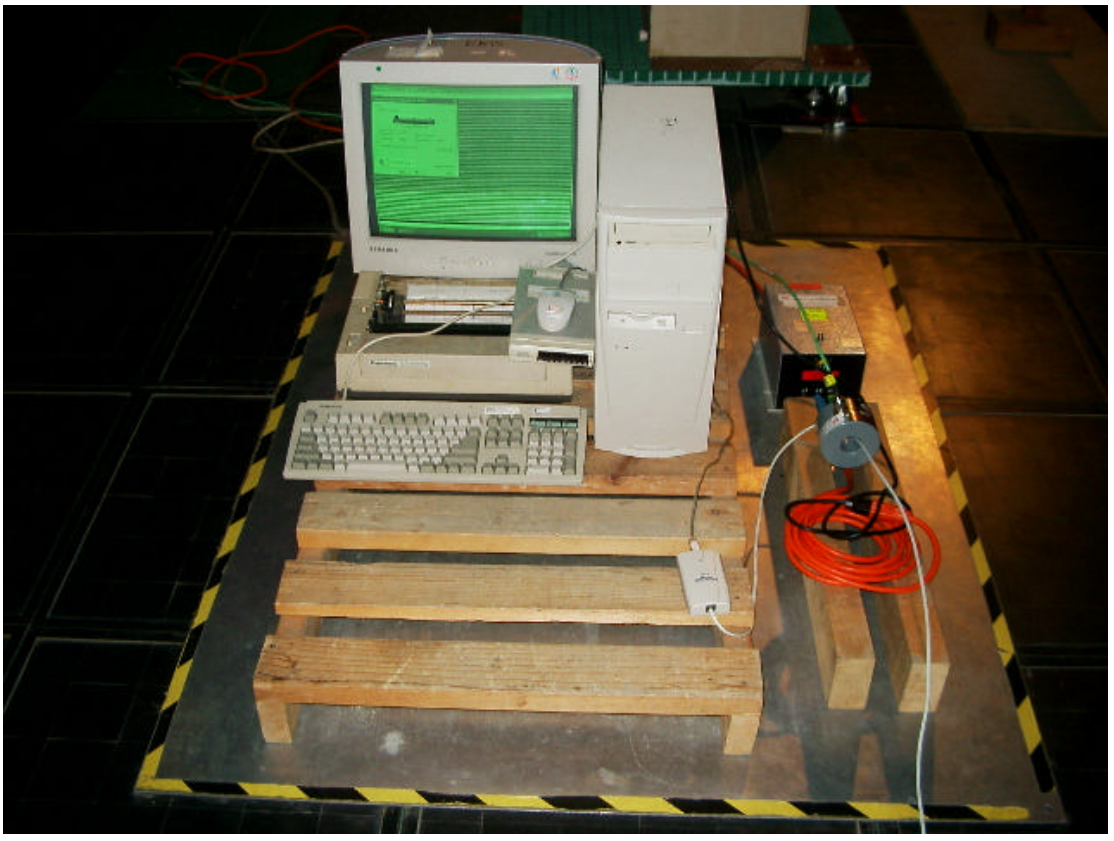
(IEC 61000-4-4 FOR I/O)



(IEC 61000-4-5 FOR I/O)

CONDUCTED DISTURBANCE, INDUCED BY RADIO-FREQUENCY FIELDS TEST (IEC 61000-4-6 FOR POWER)

(IEC 61000-4-6 FOR I/O)

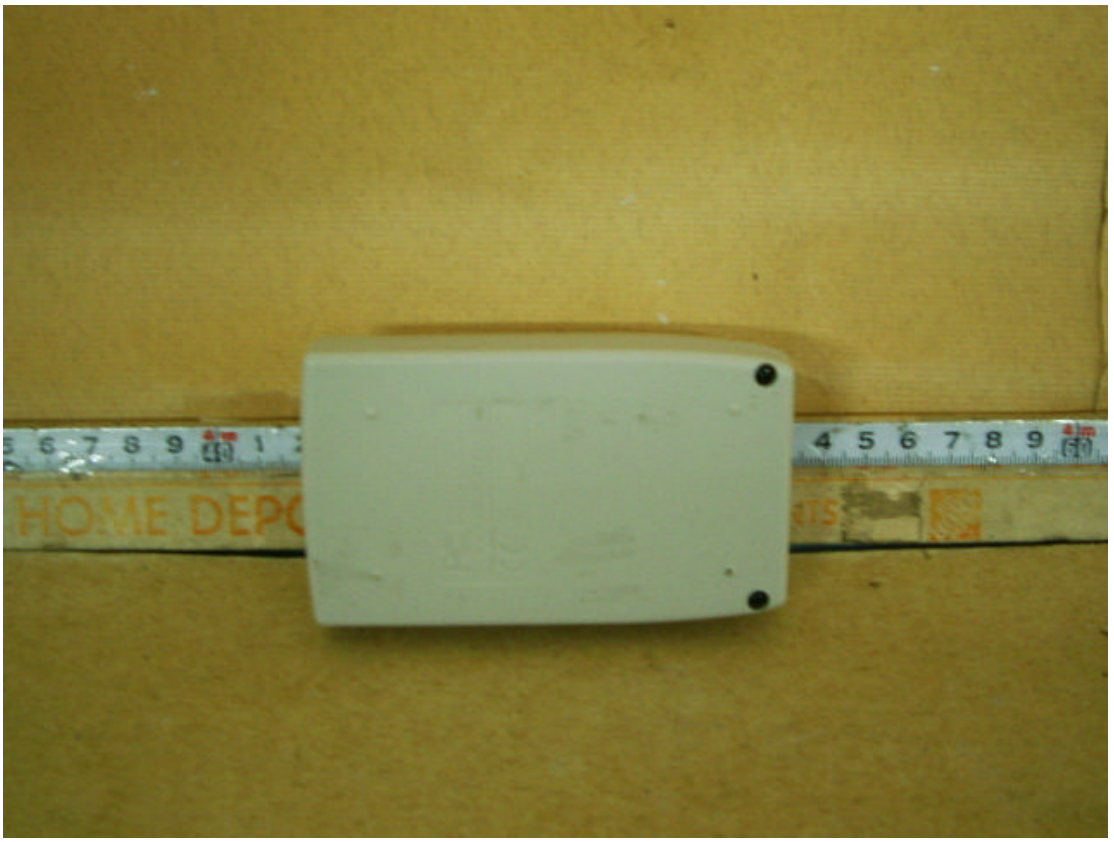


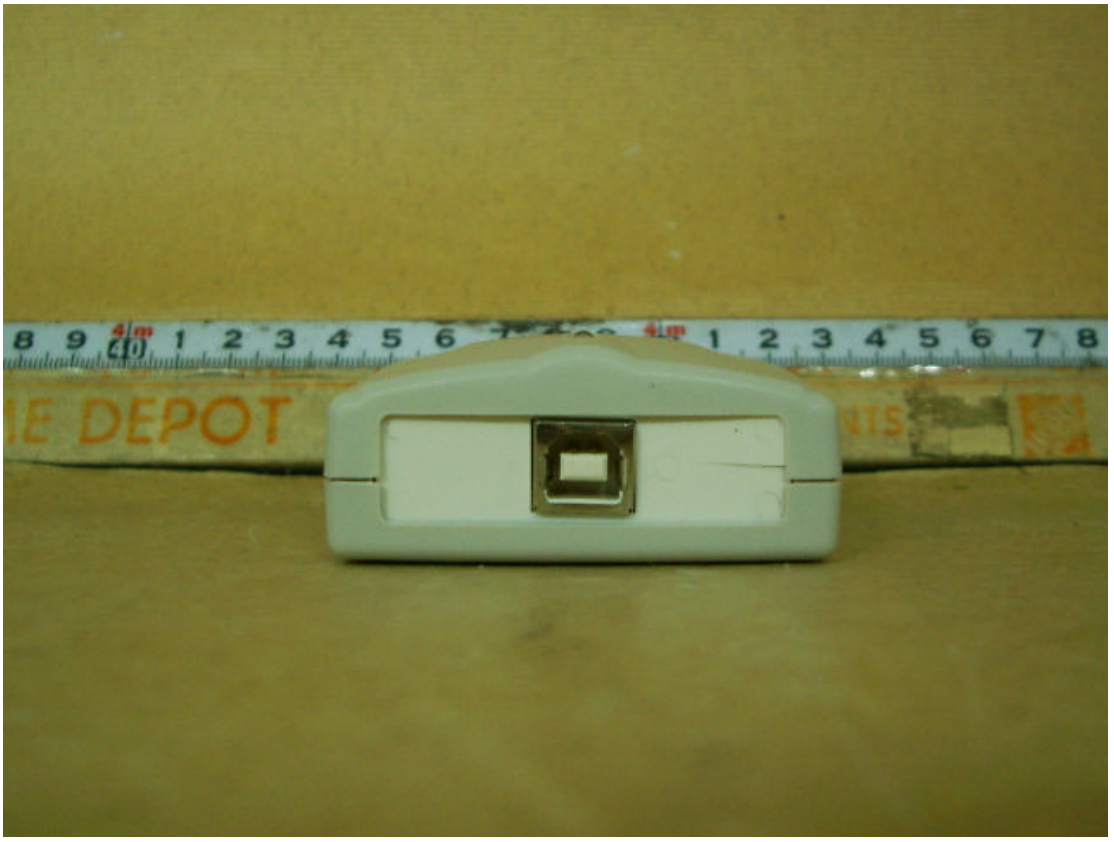
VOLTAGE DIPS / INTERRUPTION TEST (IEC 61000-4-11)

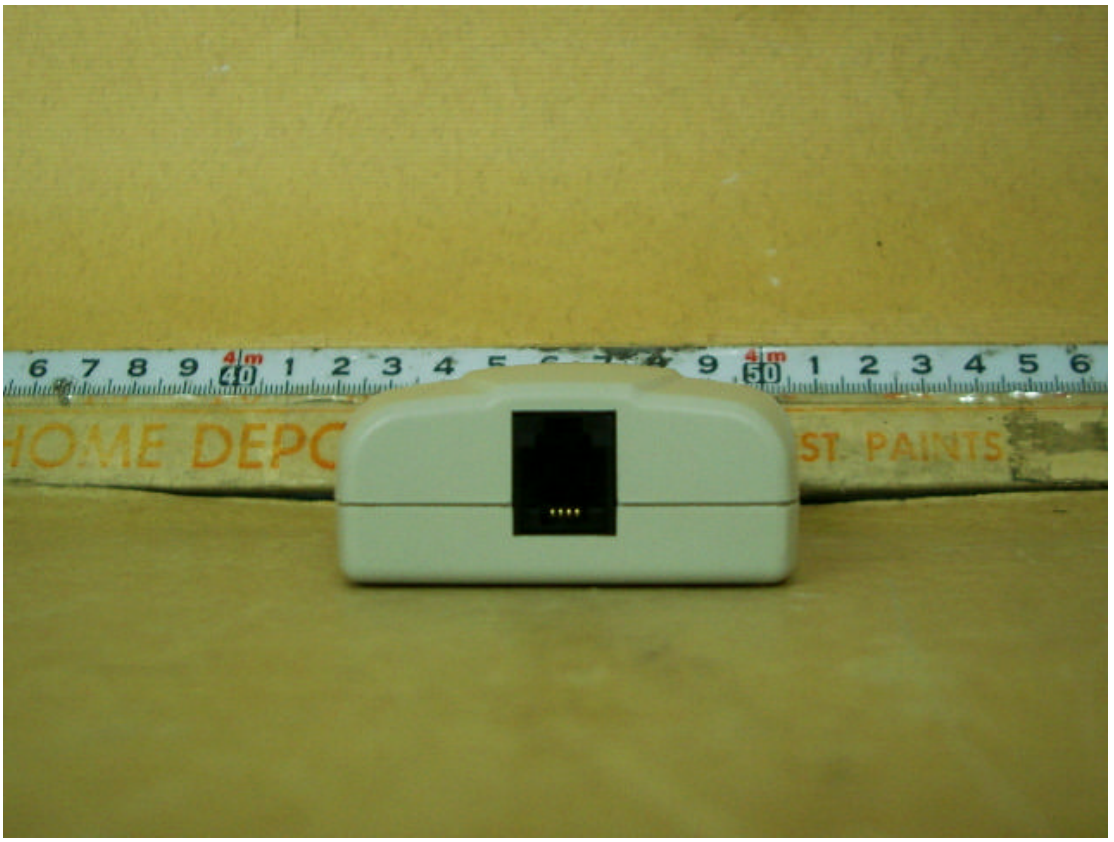
APPENDIX 2

PHOTOGRAPHS OF EUT

USB
ADSL MODEM




DEPOT

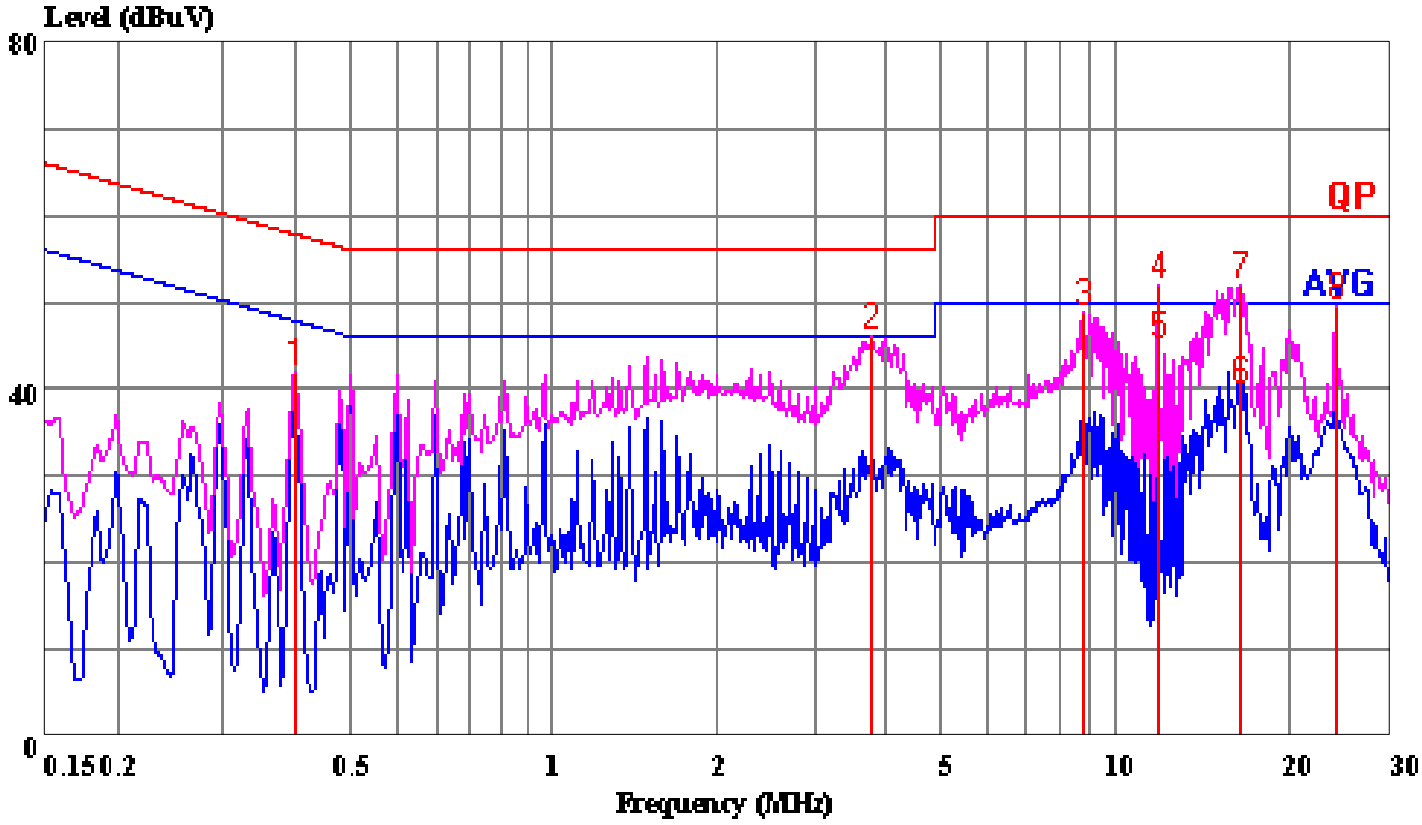

PAINTS

DEPOT

COMPLIANCE
Engineering Service, Inc.
FCC,VCCI,CISPR,CE
UL,CSA,TUV

No. 199, Chung Sheng Road,
Hsin Tien City, Taipei,
Taiwan, R.O.C.
Tel:02-2217-0894 Fax:02-2217-1254

Data#: 174 File#: 0787c.emi Date: 2003-01-24 Time: 16:39:07



(Conducted)

Trace: 159 160 Ref Trace:

Condition: LINE
Report No. : 03E0787
Test Engr. : ELVIS ZENG
Company   : EDIMAX TECHNOLOGY CO., LTD.
EUT   : AR-7024UM
Test Config : EUT / ALL PERIPHERALS
Type of Test: EN 55022 CLASS B
Mode of Op. : NORMAL MODE

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.400	41.94	0.05	41.99	57.86	-15.86	Peak
2	3.881	45.76	0.22	45.98	56.00	-10.02	Peak
3	8.964	48.34	0.34	48.68	60.00	-11.32	Peak
4	11.996	51.41	0.38	51.79	60.00	-8.21	Peak
5	11.996	44.67	0.38	45.05	50.00	-4.95	Average
6	16.573	39.27	0.42	39.69	50.00	-10.31	Average
7	16.573	51.63	0.42	52.05	60.00	-7.95	Peak
8	24.015	49.16	0.48	49.64	60.00	-10.36	Peak

COMPLIANCE Engineering Service, Inc.
FCC,VCCI,CISPR,CE
UL,CSA,TUV

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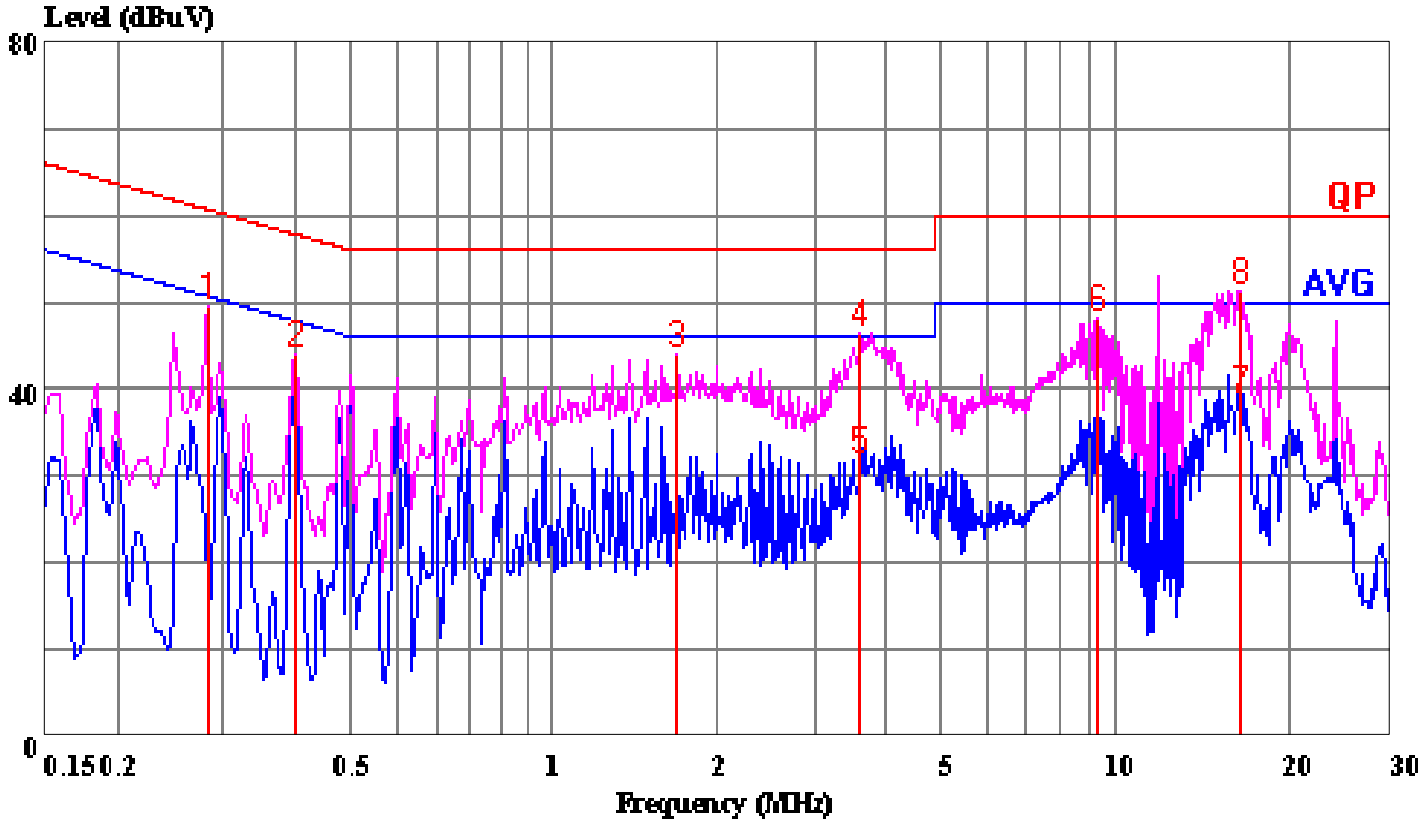
Hsin Tien City, Taipei,
Taiwan, R.O.C.
Tel:02-2217-0894 Fax:02-2217-1254

Data#: 171 File#: 0787c.emi Date: 2003-01-24 Time: 16:33:53



(Conducted)

Trace: 167 168 Ref Trace:

Condition: NEUTRAL
Report No. : 03E0787
Test Engr. : ELVIS ZENG
Company : EDIMAX TECHNOLOGY CO., LTD.
EUT : AR-7024UM
Test Config : EUT / ALL PERIPHERALS
Type of Test: EN 55022 CLASS B
Mode of Op. : NORMAL MODE

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.283	49.34	0.05	49.39	60.72	-11.33	Peak
2	0.400	44.04	0.05	44.09	57.86	-13.76	Peak
3	1.800	43.68	0.13	43.81	56.00	-12.19	Peak
4	3.700	46.30	0.21	46.52	56.00	-9.48	Peak
5	3.700	31.63	0.21	31.85	46.00	-14.15	Average
6	9.451	47.86	0.35	48.21	60.00	-11.79	Peak
7	16.573	38.44	0.42	38.86	50.00	-11.14	Average
8	16.573	50.93	0.42	51.35	60.00	-8.65	Peak

COMPLIANCE Engineering Service, Inc.
FCC,VCCI,CISPR,CE
UL,CSA,TUV

No. 199, Chung Sheng Road,
Hsin Tien City, Taipei,
Taiwan, R.O.C.
Tel:02-2217-0894 Fax:02-2217-1254

Data#: 63 File#: 0787e.EMI Date: 2003-01-23 Time: 11:17:41
E-Site

Condition: VERTICAL / 10m
Report No. : 03E0787
Test Engr. : ELVIS ZENG
Company   : EDIMAX TECHNOLOGY CO., LTD.
EUT   : AR-7024UM
Test Config : EUT/ ALL PERIPHERALS
Type of Test: EN 55022 CLASS B
Mode of Op. : NORMAL MODE

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	35.350	26.30	-5.23	21.07	30.00	-8.93	Peak
2	70.647	37.20	-15.96	21.24	30.00	-8.76	Peak
3	141.303	34.10	-12.66	21.44	30.00	-8.56	Peak
4	176.650	35.40	-9.54	25.86	30.00	-4.14	Peak
5	200.094	36.45	-8.27	28.18	30.00	-1.82	QP
6	210.030	33.00	-7.42	25.58	30.00	-4.42	Peak
7	247.320	35.00	-5.68	29.32	37.00	-7.68	Peak
8	282.611	34.00	-4.81	29.19	37.00	-7.81	Peak
9	317.944	36.60	-3.66	32.94	37.00	-4.06	Peak
10	353.290	32.00	-2.69	29.31	37.00	-7.69	Peak
11	388.682	36.76	-1.63	35.13	37.00	-1.87	QP
12	565.280	29.40	1.38	30.78	37.00	-6.22	Peak
13	600.028	31.40	1.34	32.74	37.00	-4.26	Peak

COMPLIANCE Engineering Service, Inc.
FCC,VCCI,CISPR,CE
UL,CSA,TUV

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Data#: 66 File#: 0787e.EMI Date: 2003-01-23 Time: 14:18:10
E-Site

Condition: HORIZONTAL / 10m
Report No. : 03E0787
Test Engr. : ELVIS ZENG
Company   : EDIMAX TECHNOLOGY CO., LTD.
EUT   : AR-7024UM
Test Config : EUT/ ALL PERIPHERALS
Type of Test: EN 55022 CLASS B
Mode of Op. : NORMAL MODE

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	140.810	33.30	-12.66	20.64	30.00	-9.36	Peak
2	247.286	34.60	-5.68	28.92	37.00	-8.08	Peak
3	282.640	33.80	-4.81	28.99	37.00	-8.01	Peak
4	314.989	36.60	-3.74	32.86	37.00	-4.14	Peak
5	388.703	36.06	-1.63	34.43	37.00	-2.57	QP
6	600.021	30.40	1.34	31.74	37.00	-5.26	Peak